

حمل الآن

مجانا وحصريا

# امتحانات رقم (1)

## الترم الاول





# Some Schools Examinations



## on Geometry

1

Cairo Governorate

El-Nozha Directorate  
Sunrise Language School

Answer the following questions :

### 1 Choose the correct answer :

1 The sum of lengths of any two sides in any triangle ..... the length of the third side.

- (a) is less than      (b) is greater than      (c) equals      (d) otherwise

2 In  $\triangle ABC$  , if  $AB = 3$  cm. and  $BC = 5$  cm. , then  $AC \in$  .....

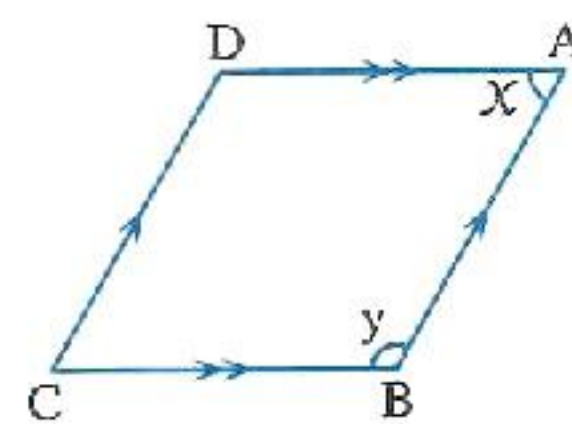
- (a)  $]3, 8]$       (b)  $[2, 8]$       (c)  $]2, 8[$       (d)  $]2, 5[$

3 In the opposite figure :

If ABCD is a parallelogram and  $x : y = 1 : 2$

, then  $m(\angle C) =$  .....

- (a)  $60^\circ$       (b)  $120^\circ$   
(c)  $180^\circ$       (d)  $360^\circ$



4 The right-angled triangle has ..... median(s).

- (a) 0      (b) 1      (c) 2      (d) 3

5 If  $\triangle ABC$  has one axis of symmetry and  $m(\angle ABC) = 140^\circ$  , then  $m(\angle A) =$  .....

- (a)  $30^\circ$       (b)  $20^\circ$       (c)  $40^\circ$       (d)  $60^\circ$

### 2 Complete :

1 If the lengths of two sides of an isosceles triangle are 4 cm. and 10 cm. , then the length of the third side is .....

2 In an isosceles triangle , if any angle has a measure of  $60^\circ$  , then the triangle is .....

3 If ABCD is a square , then  $m(\angle ACB) =$  ..... $^\circ$

4 In  $\triangle ABC$  ,  $m(\angle C) = 60^\circ$  ,  $m(\angle B) = 90^\circ$  and  $AC = 8$  cm. , then  $BC =$  ..... cm.

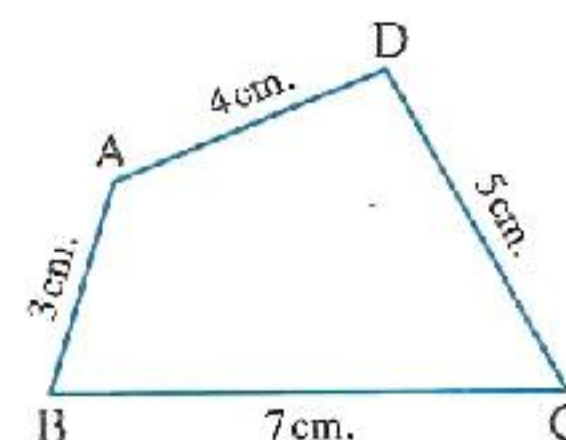
### 3 [a] In the opposite figure :

ABCD is a quadrilateral in which :

$AB = 3$  cm. ,  $BC = 7$  cm.

,  $CD = 5$  cm. and  $DA = 4$  cm.

Prove that :  $m(\angle BAD) > m(\angle BCD)$





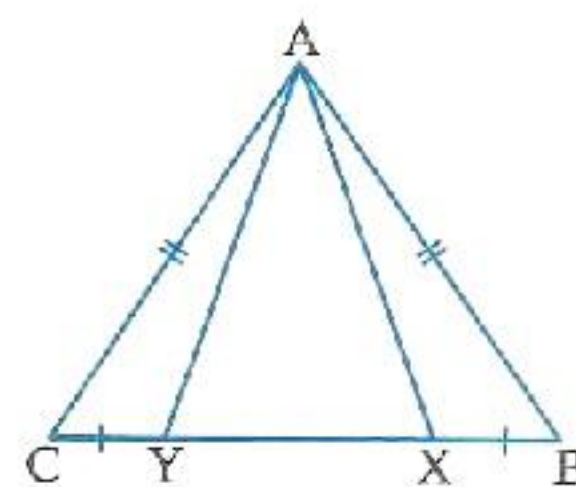
[b] In the opposite figure :

$$AB = AC$$

$$, BX = CY$$

Prove that :

$$AX = AY$$



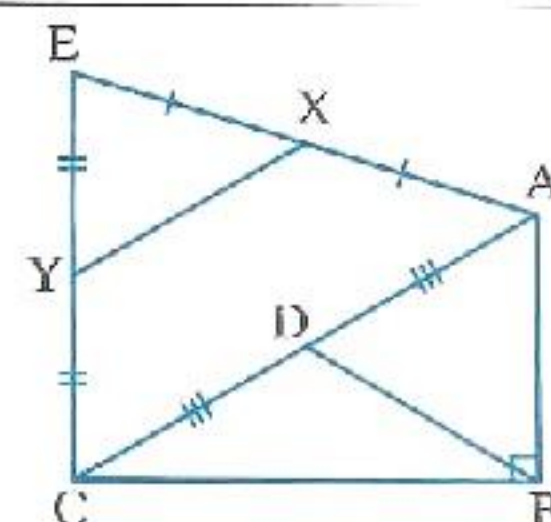
4 [a] In the opposite figure :

X , Y and D are the midpoints of  $\overline{EA}$

,  $\overline{EC}$  and  $\overline{AC}$  respectively

$$, m(\angle ABC) = 90^\circ$$

Prove that :  $BD = YX$



[b] In the opposite figure :

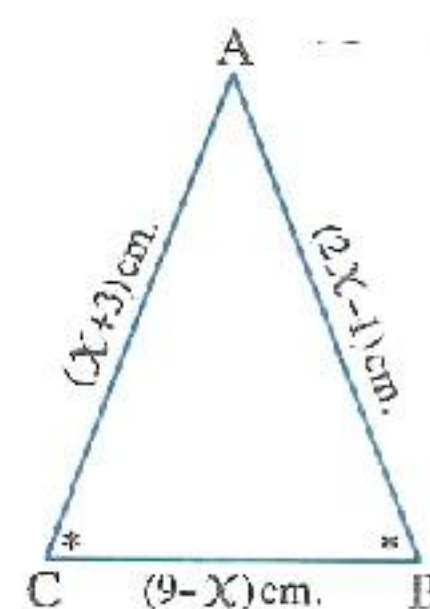
$$m(\angle B) = m(\angle C)$$

$$, AB = (2x - 1) \text{ cm.}$$

$$, AC = (x + 3) \text{ cm.}$$

$$, BC = (9 - x) \text{ cm.}$$

Find with proof : The perimeter of  $\triangle ABC$



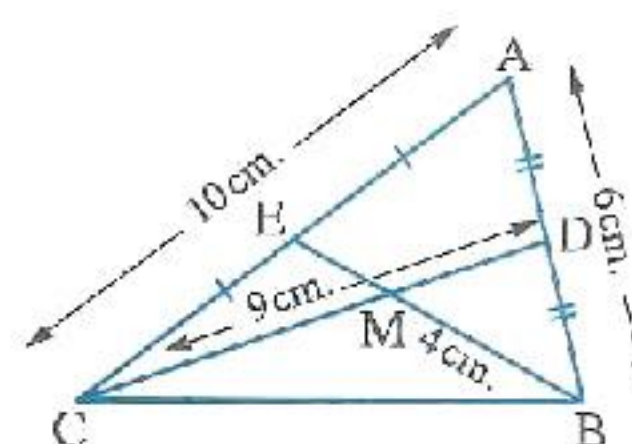
5 [a] In the opposite figure :

$$AB = 6 \text{ cm.}, AC = 10 \text{ cm.}, BM = 4 \text{ cm.}, CD = 9 \text{ cm.}$$

, D and E are the midpoints of  $\overline{AB}$  and  $\overline{AC}$  respectively

$$, \overline{BE} \cap \overline{CD} = \{M\}$$

Find : The perimeter of the figure ADME



[b] Prove that the length of any side in a triangle is less than half of the perimeter.

2

Cairo Governorate



El-Zeitoun Zone  
Math's Inspection

Answer the following questions :

1 Choose the correct answer :

[1] The measure of the exterior angle of an equilateral triangle equals .....

(a)  $45^\circ$

(b)  $90^\circ$

(c)  $60^\circ$

(d)  $120^\circ$

[2] The number of axes of symmetry of a triangle whose measures of two angles are  $40^\circ$  and  $70^\circ$  is .....

(a) zero

(b) 1

(c) 2

(d) 3



## Geometry

3 If  $\triangle ABC$  is a right-angled triangle at B, then AC ..... AB

- (a) <                      (b) >                      (c) =                      (d)  $\leq$

4 If  $\triangle XYZ$  is an isosceles triangle and  $m(\angle X) = 110^\circ$ , then  $m(\angle Y) =$  .....

- (a)  $70^\circ$                       (b)  $35^\circ$                       (c)  $60^\circ$                       (d)  $110^\circ$

5 If A  $\in$  the axis of symmetry of  $\overline{XY}$ , then  $\overline{AX}$  .....  $\overline{AY}$

- (a)  $\parallel$                       (b)  $\equiv$                       (c) =                      (d)  $\perp$

2 Complete each of the following :

1 If  $\triangle ABC$  is a right-angled triangle at B,  $m(\angle C) = 30^\circ$  and  $AC = 12$  cm.  
then  $AB =$  .....

2 The length of any side of a triangle ..... the sum of the lengths of the other two sides.

3 The length of the median from the right angle in the right-angled triangle equals .....

4 The measure of the supplementary angle of the angle of measure  $70^\circ$  is .....

3 [a] Arrange ascendingly the measures of the angles of  $\triangle XYZ$ , if  $XY = 5$  cm.,  $YZ = 7$  cm.  
and  $XZ = 6$  cm.

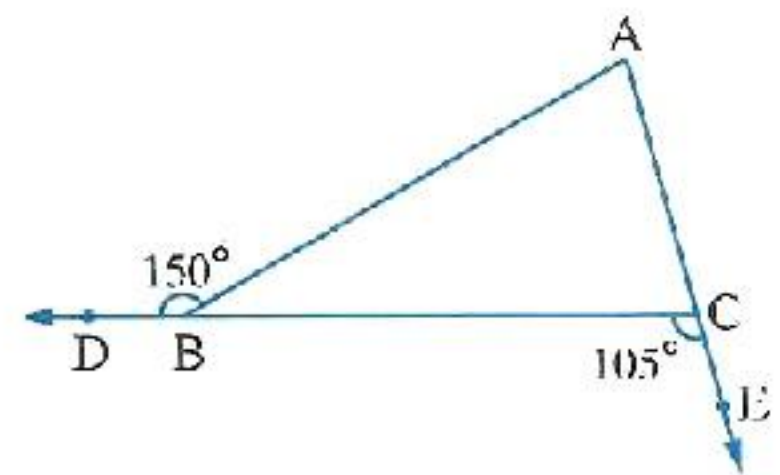
[b] In the opposite figure :

$$B \in \overrightarrow{CD}, C \in \overrightarrow{AE}$$

$$, m(\angle ABD) = 150^\circ$$

$$, m(\angle BCE) = 105^\circ$$

Prove that :  $AB > AC$

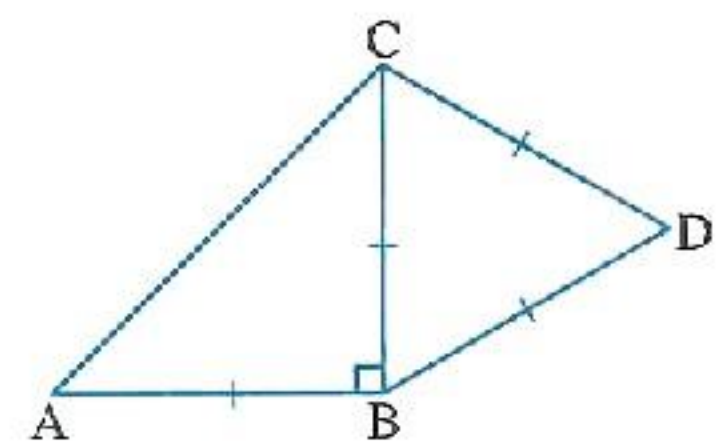


4 [a] In the opposite figure :

$$AB = BC = CD = DB$$

$$, m(\angle ABC) = 90^\circ$$

Find :  $m(\angle ACD)$

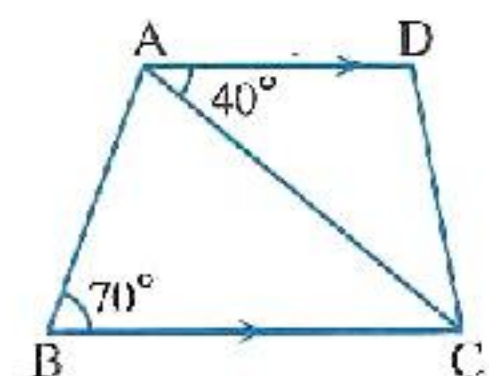


[b] In the opposite figure :

ABCD is a quadrilateral,  $\overline{AD} \parallel \overline{BC}$

$$, m(\angle CAD) = 40^\circ, m(\angle ABC) = 70^\circ$$

Prove that :  $\triangle ABC$  is an isosceles triangle.





**5 [a] In the opposite figure :**

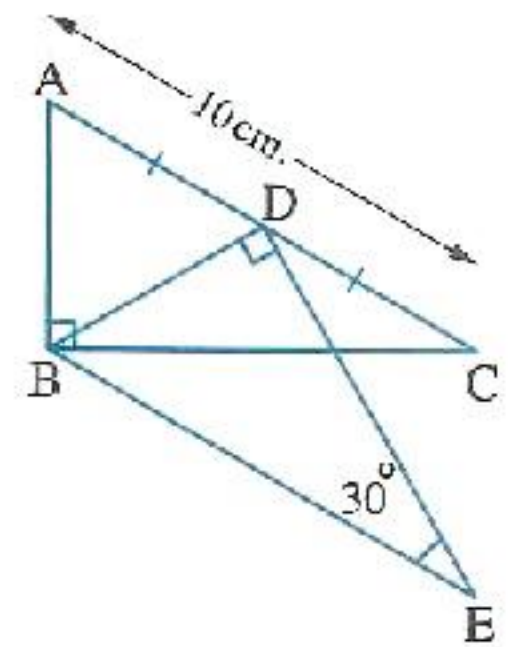
$$m(\angle ABC) = m(\angle BDE) = 90^\circ$$

$$, m(\angle E) = 30^\circ$$

$$, AC = 10 \text{ cm.}$$

, D is the midpoint of  $\overline{AC}$

**Find :** The length of  $\overline{BE}$



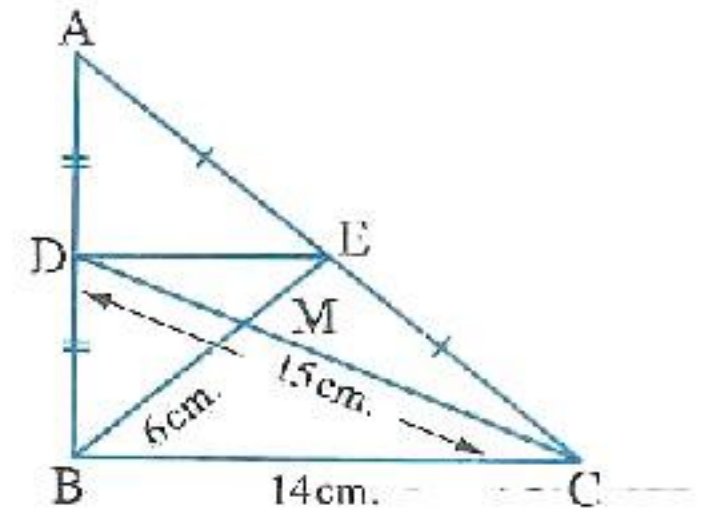
**[b] In the opposite figure :**

ABC is a triangle , D and E are the midpoints of  $\overline{AB}$

and  $\overline{AC}$  respectively ,  $\overline{BE} \cap \overline{CD} = \{M\}$  ,  $BC = 14 \text{ cm.}$

$$, CD = 15 \text{ cm.} , BM = 6 \text{ cm.}$$

**Find :** The perimeter of  $\triangle MDE$



**3**

**Giza Governorate**



**Math Inspection**

*Answer the following questions :*

**1 Choose the correct answer from those given :**

**1** The supplementary angle of the angle whose measure is  $30^\circ$  is an angle of measure .....

- (a)  $60^\circ$                       (b)  $180^\circ$                       (c)  $150^\circ$                       (d)  $90^\circ$

**2** The triangle which has three axes of symmetry is .....

- (a) scalene.                      (b) isosceles.                      (c) right-angled.                      (d) equilateral.

**3** If the lengths of two sides of a triangle are 5 cm. and 10 cm. , then the length of the third side belongs to .....

- (a)  $[10, 15[$                       (b)  $]5, 15[$                       (c)  $]5, 10[$                       (d)  $[10, 15]$

**4** In  $\triangle ABC$  , if  $AC = 4 \text{ cm.}$  ,  $BC = 3 \text{ cm.}$  , then  $m(\angle B)$  .....  $m(\angle A)$

- (a)  $>$                       (b)  $<$                       (c)  $=$                       (d)  $\leq$

**5** The point of concurrence of the medians of the triangle divides each median in the ratio ..... from the base.

- (a)  $1 : 2$                       (b)  $2 : 1$                       (c)  $1 : 3$                       (d)  $2 : 3$

**2 Complete each of the following :**

**1** The longest side in the right-angled triangle is .....

**2** The base angles of the isosceles triangle are .....

**3** If  $m(\angle A) = 150^\circ$  , then  $m(\text{reflex } \angle A) = \dots\dots\dots^\circ$

**4** The measure of the exterior angle of the equilateral triangle equals .....



## Geometry

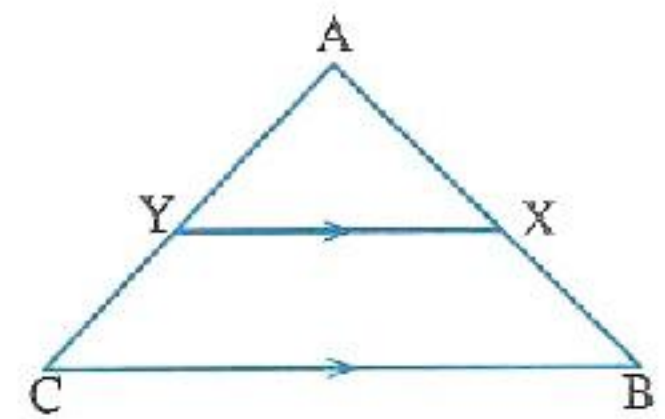
**3 [a] In the opposite figure :**

$ABC$  is a triangle in which  $AB = AC$

,  $X \in \overline{AB}$

,  $Y \in \overline{AC}$  and  $\overline{XY} \parallel \overline{BC}$

**Prove that :**  $\triangle AXY$  is an isosceles triangle.



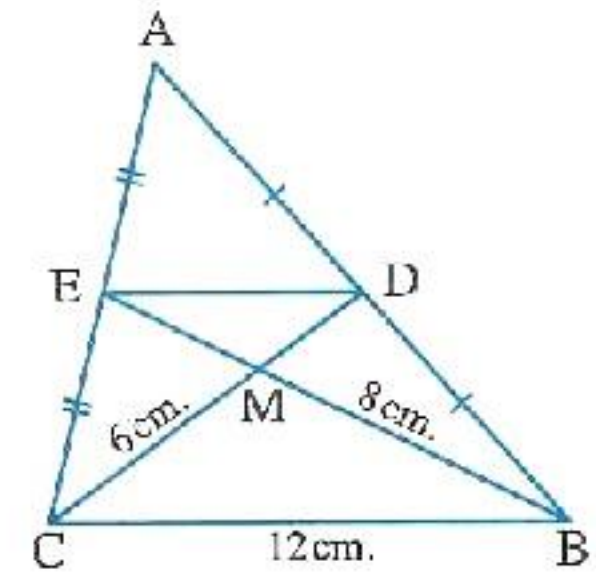
**[b] In the opposite figure :**

$\overline{CD}$  and  $\overline{BE}$  are two medians in  $\triangle ABC$  intersecting at  $M$

,  $CB = 12$  cm. ,  $BM = 8$  cm.

and  $CM = 6$  cm.

**Find :** The perimeter of  $\triangle MDE$



**4 [a] In  $\triangle ABC$  ,  $AB = 6$  cm. ,  $BC = 7$  cm. and  $AC = 8$  cm.**

Arrange its angles ascendingly due to their measures.

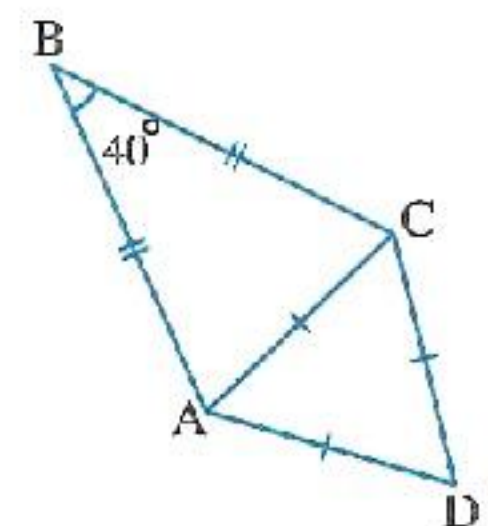
**[b] In the opposite figure :**

$AB = BC$

,  $AD = DC = AC$

and  $m(\angle ABC) = 40^\circ$

**Find :**  $m(\angle BAD)$

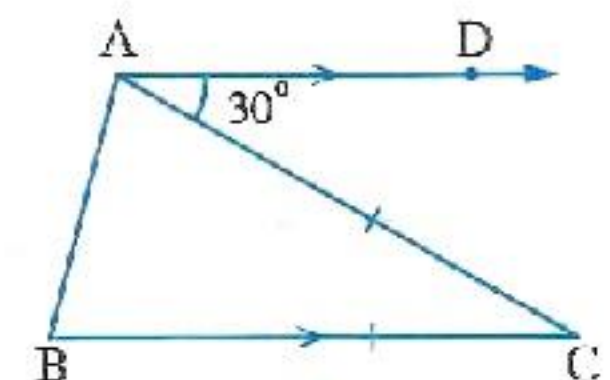


**5 [a] In the opposite figure :**

$ABC$  is a triangle in which  $AC = BC$

,  $\overline{AD} \parallel \overline{BC}$  and  $m(\angle DAC) = 30^\circ$

**Find :** The measures of the angles of  $\triangle ABC$

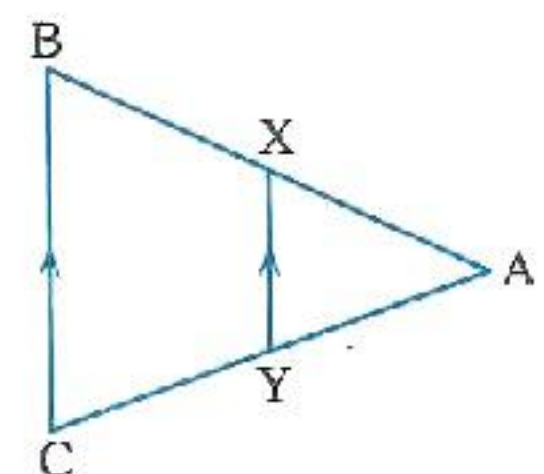


**[b] In the opposite figure :**

$AB > BC$

,  $\overline{XY} \parallel \overline{BC}$

**Prove that :**  $AX > XY$





4

Giza Governorate



Awseem Directorate

Answer the following questions :

**1 Choose the correct answer :**

- 1 The number of axes of symmetry of an equilateral triangle is .....  
 (a) 0 (b) 1 (c) 2 (d) 3
- 2 In  $\triangle ABC$  , if  $BC > AB$  , then  $m(\angle A)$  .....  $m(\angle C)$   
 (a)  $>$  (b)  $=$  (c)  $<$  (d)  $\leq$
- 3 If A lies on the axis of symmetry of  $\overline{XY}$  , then  $\overline{AX}$  .....  $\overline{AY}$   
 (a)  $//$  (b)  $\perp$  (c)  $\equiv$  (d)  $=$
- 4 If  $\overline{AD}$  is a median of  $\triangle ABC$  , and M is the point of intersection of the medians , then  $AM =$  .....  $AD$   
 (a)  $\frac{1}{3}$  (b)  $\frac{2}{3}$  (c)  $\frac{1}{2}$  (d)  $\frac{1}{4}$
- 5 ABC is an isosceles triangle , its side lengths are 4 cm. , 9 cm. and X cm. , then  $X =$  .....  
 (a) 4 (b) 9 (c) 5 (d) 13

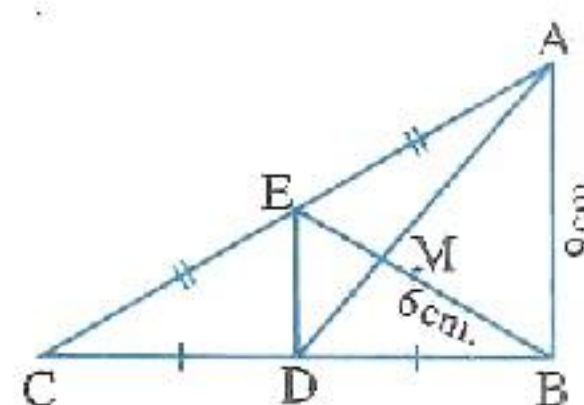
**2 Complete :**

- 1 ABC is a triangle in which :  $m(\angle C) = 112^\circ$  , then the longest side is .....
- 2 The bisector of the vertex angle of an isosceles triangle ..... and .....
- 3 The lengths of two sides of a triangle are not equal , then the greater side in length is opposite to .....
- 4 The length of the side opposite to the angle of measure  $30^\circ$  in the right-angled triangle equals ..... the length of the hypotenuse.

**3 [a] In the opposite figure :**

ABC is a triangle , E and D are the midpoints of  $\overline{AC}$  and  $\overline{BC}$  respectively ,  $\overline{AD} \cap \overline{BE} = \{M\}$  ,  $AD = 12$  cm. ,  $MB = 6$  cm. ,  $AB = 9$  cm.

**Find :** The perimeter of  $\triangle EMD$





## Geometry

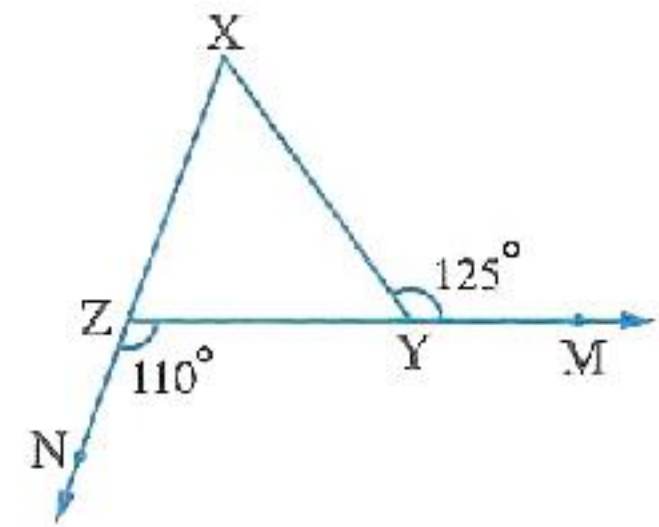
**[b] In the opposite figure :**

$$Y \in \overrightarrow{ZM}, Z \in \overrightarrow{XN}$$

$$, m(\angle XYM) = 125^\circ$$

$$, m(\angle MZN) = 110^\circ$$

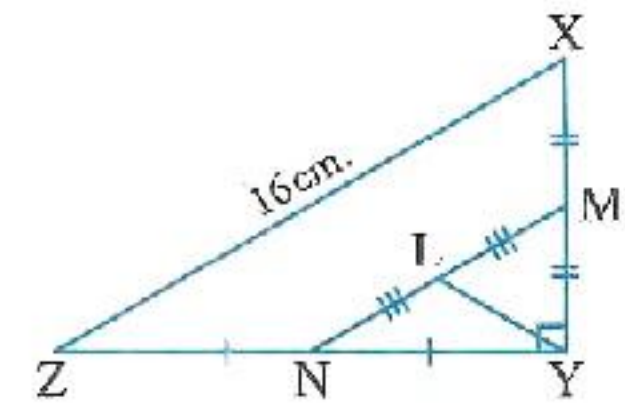
**Prove that :  $XY > ZY$**



**4 [a] In the opposite figure :**

$m(\angle XYZ) = 90^\circ$  , M , N and L are the midpoints of  $\overline{XY}$  ,  $\overline{ZY}$  and  $\overline{MN}$  respectively ,  $XZ = 16$  cm.

**Find : The length of  $\overline{YL}$**

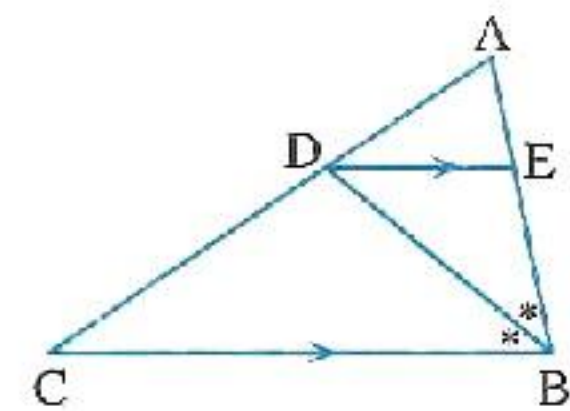


**[b] In the opposite figure :**

$\overrightarrow{BD}$  bisects  $\angle ABC$  and intersects  $\overline{AC}$  at D

,  $\overline{DE} \parallel \overline{BC}$  where  $E \in \overline{AB}$

**Prove that :  $\triangle EBD$  is an isosceles triangle.**



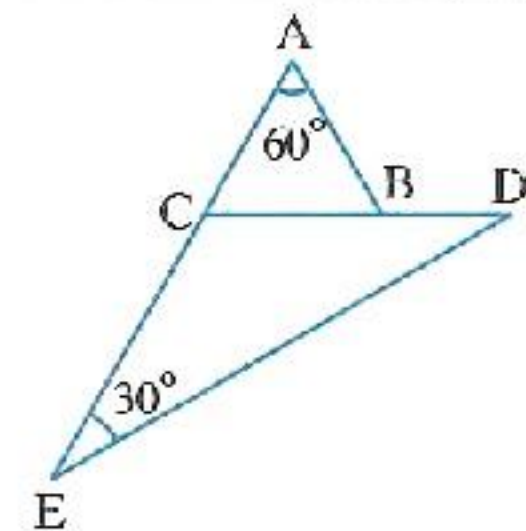
**5 [a] In the opposite figure :**

$\triangle CDE$  is an isosceles triangle in which  $EC = DC$

,  $E \in \overrightarrow{AC}$  ,  $m(\angle DEC) = 30^\circ$

,  $m(\angle CAB) = 60^\circ$

**Prove that :  $\triangle ABC$  is an equilateral triangle.**



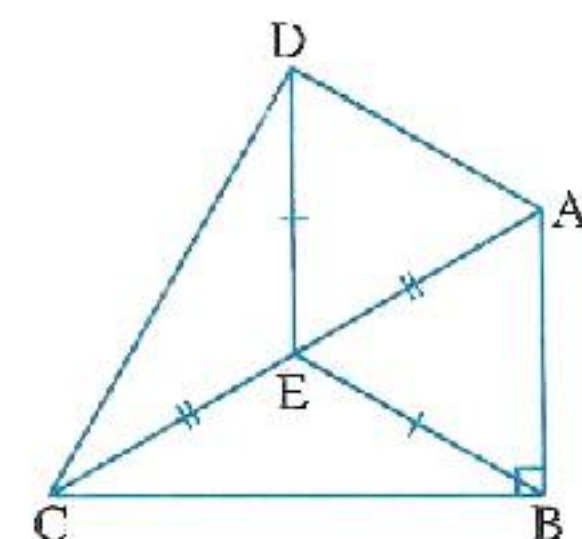
**[b] In the opposite figure :**

$m(\angle ABC) = 90^\circ$

,  $AE = CE$

,  $BE = DE$

**Prove that :  $m(\angle ADC) = 90^\circ$**



**5**

**Alexandria Governorate**



**West Administration**

**Answer the following questions : (Calculator is allowed)**

**1 Choose the correct answer from those given :**

**1** The axis of symmetry of a line segment is the ..... bisector of this line segment.

(a) parallel

(b) perpendicular

(c) inclined

(d) skew



2 In  $\triangle ABC$ , if  $\overline{AD}$  is a median,  $M$  is the point of intersection of its medians, then  $AM = \dots\dots\dots AD$

- (a)  $\frac{1}{2}$  (b) 2 (c)  $\frac{2}{3}$  (d)  $\frac{3}{2}$

3 The isosceles triangle has  $\dots\dots\dots$  axis of symmetry.

- (a) one (b) two (c) three (d) four

4 In  $\triangle XYZ$ , if  $m(\angle Z) = 70^\circ$  and  $m(\angle Y) = 60^\circ$ , then  $YZ \dots\dots\dots XY$

- (a)  $>$  (b)  $<$  (c)  $\geq$  (d)  $=$

5 The set of numbers can be the lengths of the sides of a triangle is  $\dots\dots\dots$

- (a)  $\{4, 6, 10\}$  (b)  $\{4, 6, 8\}$  (c)  $\{2, 3, 6\}$  (d)  $\{4, 5, 10\}$

2 Complete each of the following :

1 If  $AB = XY$ , then  $AB - XY = \dots\dots\dots$

2 The measure of each exterior angle of an equilateral triangle is  $\dots\dots\dots^\circ$

3 The longest side in a right-angled triangle is  $\dots\dots\dots$

4 In  $\triangle LMN$ , if  $m(\angle L) = 42^\circ$  and  $m(\angle M) = 69^\circ$ , then the type of  $\triangle LMN$  according to its sides is  $\dots\dots\dots$  triangle.

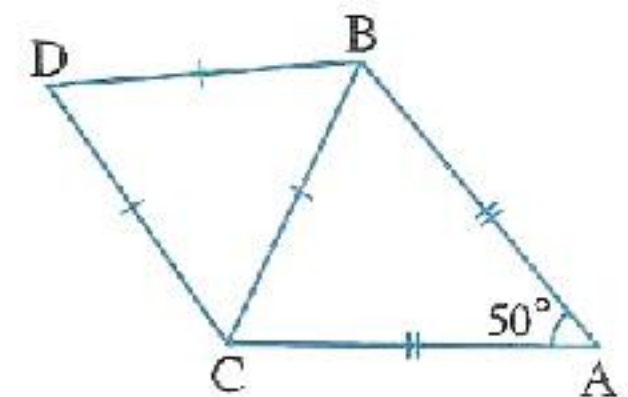
3 [a] In the opposite figure :

$$m(\angle A) = 50^\circ$$

$$AB = AC$$

$\triangle DBC$  is an equilateral triangle

Find :  $m(\angle ABD)$



[b] In  $\triangle ABC$ ,  $AB = 5$  cm,  $BC = 6$  cm, and  $CA = 7$  cm.

Arrange the angles of  $\triangle ABC$  in an ascending order.

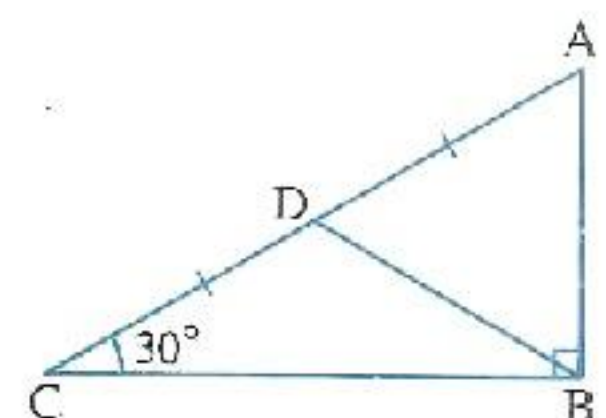
4 [a] In the opposite figure :

$\triangle ABC$  is right-angled at B

$$m(\angle C) = 30^\circ$$

$D$  is the midpoint of  $\overline{AC}$

Prove that :  $AB = DB$





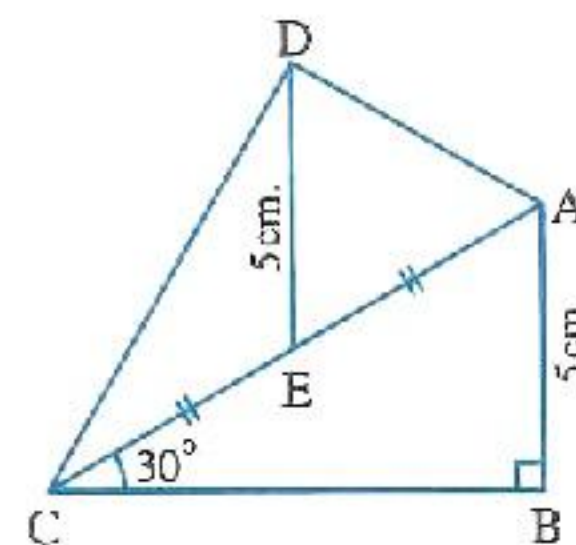
[b] In the opposite figure :

ABC is a right-angled triangle at B

,  $m(\angle ACB) = 30^\circ$  ,  $AB = 5$  cm.

, E is the midpoint of  $\overline{AC}$  ,  $DE = 5$  cm.

Prove that :  $m(\angle ADC) = 90^\circ$

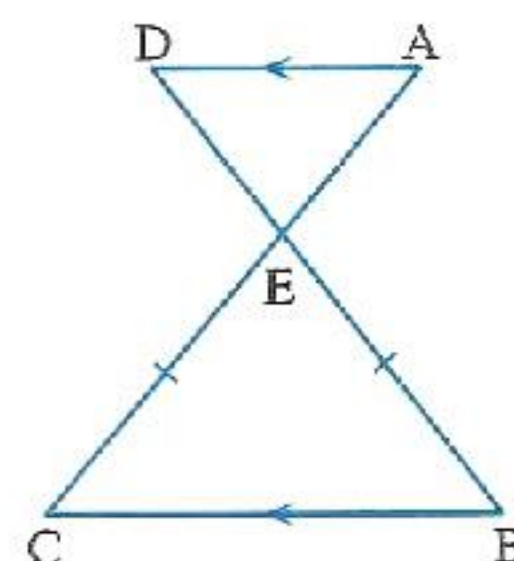


5 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$

,  $EB = EC$

Prove that :  $EA = ED$

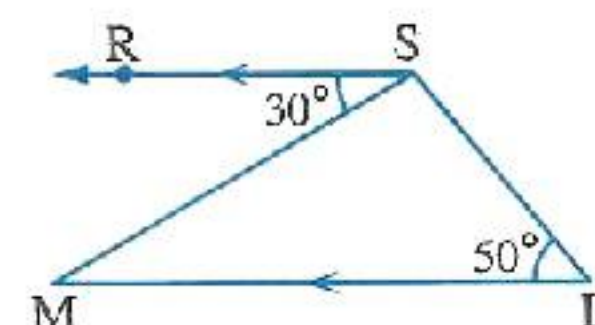


[b] In the opposite figure :

$\overrightarrow{SR} \parallel \overrightarrow{LM}$  ,  $m(\angle L) = 50^\circ$

,  $m(\angle RSM) = 30^\circ$

Prove that :  $ML > SL$



6

El-Kalyoubia Governorate



Maths Supervision  
Official Language Schools

Answer the following questions :

1 Choose the correct answer from those given :

[1] In  $\triangle ABC$  , if  $AB = 6$  cm. and  $AC = 7$  cm. , then  $BC \in \dots\dots\dots$

(a)  $]6, 13]$  (b)  $[6, 7]$  (c)  $]1, 13[$  (d)  $[1, 7[$

[2] The point of intersection of the medians of the triangle divides each of them in the ratio of ..... from the vertex.

(a)  $1 : 2$  (b)  $1 : 3$  (c)  $2 : 1$  (d)  $2 : 3$

[3]  $\triangle XYZ$  is an isosceles triangle in which  $m(\angle X) = 110^\circ$  , then  $m(\angle Y) = \dots\dots\dots$

(a)  $110^\circ$  (b)  $35^\circ$  (c)  $60^\circ$  (d)  $45^\circ$

[4] XYZ is a triangle in which  $m(\angle Z) = 70^\circ$  ,  $m(\angle Y) = 60^\circ$  , then  $YZ \dots\dots\dots XY$

(a)  $>$  (b)  $<$  (c)  $=$  (d)  $\geq$

[5] If 4 cm. ,  $(x + 3)$  cm. and 8 cm. are side lengths of an isosceles triangle , then  $x = \dots\dots\dots$

(a) 3 (b) 4 (c) 5 (d) 6



**2 Complete the following :**

- 1** In  $\triangle ABC$  , if  $m(\angle A) = m(\angle B) + m(\angle C)$  , then the longest side is .....
- 2** If  $\angle X$  and  $\angle Y$  are two supplementary angles ,  $\angle X \equiv \angle Y$  , then  $m(\angle X) = \dots\dots\dots^\circ$
- 3** The number of axes of symmetry of the rectangle equals .....
- 4** If  $\triangle ABC \equiv \triangle XYZ$  , then  $AC - XZ = \dots\dots\dots$

**3 [a] In the opposite figure :**

$$AC = AB, D \in \overline{BC}$$

Prove that :

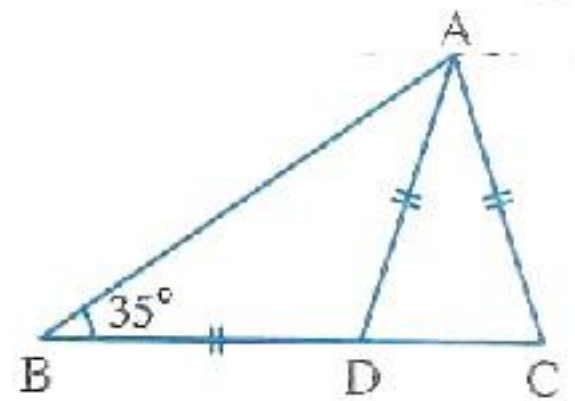
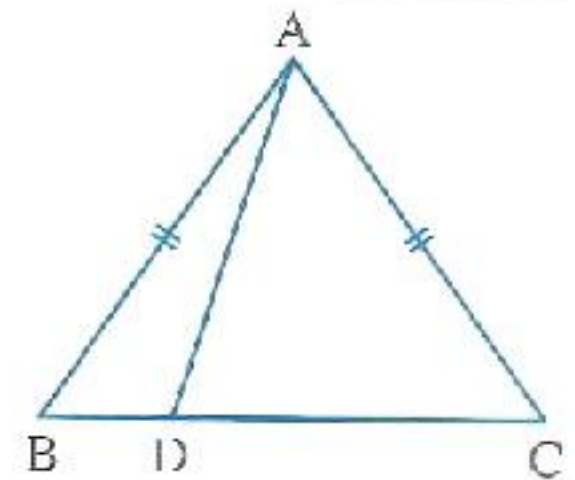
$$AB > AD$$

**[b] In the opposite figure :**

$$AC = AD = BD$$

$$, m(\angle B) = 35^\circ$$

Find :  $m(\angle BAC)$



**4 [a] In the opposite figure :**

$m(\angle ABC) = 90^\circ$  , X , Y and D are the midpoints  
of  $\overline{AB}$  ,  $\overline{BC}$  and  $\overline{XY}$  respectively

$$, AC = 22 \text{ cm.}$$

Find : BD

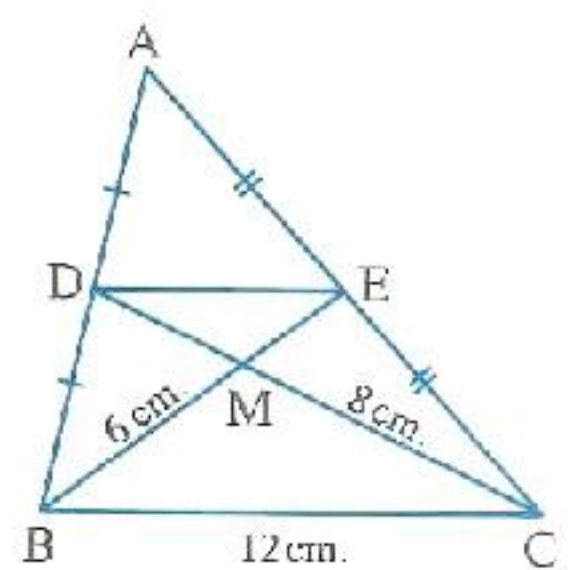
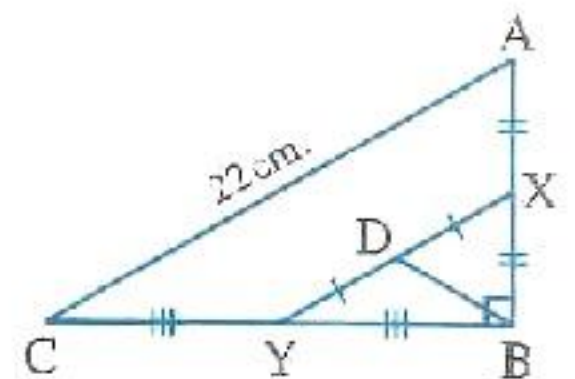
**[b] In the opposite figure :**

$\overline{BE}$  and  $\overline{CD}$  are medians in  $\triangle ABC$

$$, \overline{BE} \cap \overline{CD} = \{M\} , MB = 6 \text{ cm.}$$

$$, MC = 8 \text{ cm.} , BC = 12 \text{ cm.}$$

Find : The perimeter of  $\triangle MDE$



**5 [a] In the opposite figure :**

$$\overline{AD} \parallel \overline{BC} , m(\angle BAC) = 70^\circ$$

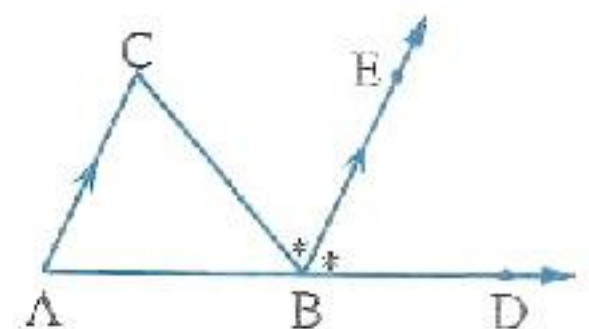
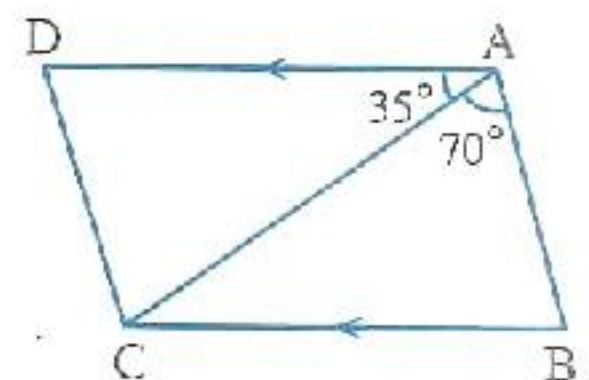
$$\text{and } m(\angle DAC) = 35^\circ$$

Prove that :  $AC > BC$

**[b] In the opposite figure :**

$$D \in \overline{AB} , \overline{BE} \text{ bisects } \angle CBD \text{ and } \overline{BE} \parallel \overline{AC}$$

Prove that :  $\triangle ABC$  is an isosceles triangle.







Answer the following questions :

**1 Choose the correct answer :**

- 1** The measure of the exterior angle of the equilateral triangle equals .....  
 (a)  $30^\circ$                       (b)  $60^\circ$                       (c)  $90^\circ$                       (d)  $120^\circ$
- 2** In  $\triangle ABC$  , if  $BC = 9$  cm. and  $AB = 7$  cm. , then  $m(\angle C)$  .....  $m(\angle A)$   
 (a)  $=$                       (b)  $<$                       (c)  $>$                       (d)  $\geq$
- 3** In  $\triangle ABC$  , if  $m(\angle A) = 40^\circ$  and  $m(\angle B) = 70^\circ$  , then the number of axes of symmetry of  $\triangle ABC$  equals .....  
 (a) 1                      (b) 2                      (c) 3                      (d) 4
- 4** If  $\triangle XYZ$  is a right-angled triangle at  $Y$  , then  $XZ$  .....  $YZ$   
 (a)  $=$                       (b)  $<$                       (c)  $>$                       (d)  $\leq$
- 5** In  $\triangle ABC$  , if  $m(\angle C) = 60^\circ$  and  $m(\angle B) = 90^\circ$  , then  $AC =$  .....  
 (a)  $2 BC$                       (b)  $\frac{1}{2} AB$                       (c)  $2 AB$                       (d)  $\frac{1}{2} BC$

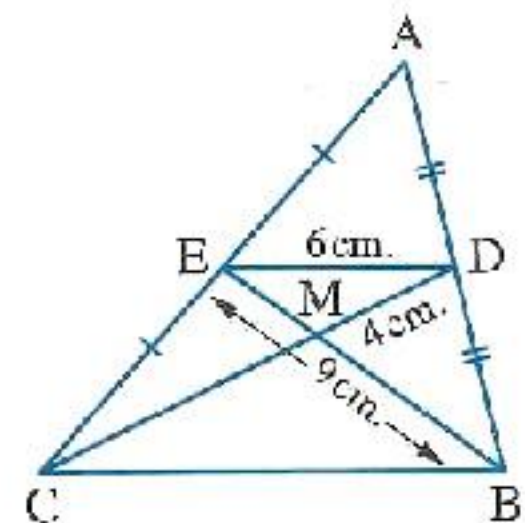
**2 Complete the following :**

- 1** In the triangle  $ABC$  , if  $AB = 3$  cm. and  $BC = 5$  cm. , then  $AC \in ]$  ..... , ..... [
- 2** The intersection point of the medians of the triangle divides each median by the ratio ..... : ..... from its base.
- 3** The bisector of the vertex angle of an isosceles triangle bisects the base and .....
- 4** The lengths 6 cm. , 3 cm. and ..... cm. can be lengths of sides of an isosceles triangle.

**3 [a] In the opposite figure :**

$\overline{BE}$  and  $\overline{CD}$  are two medians in  $\triangle ABC$   
 $\overline{BE} \cap \overline{CD} = \{M\}$  ,  $BE = 9$  cm.  
 $MD = 4$  cm. ,  $DE = 6$  cm.

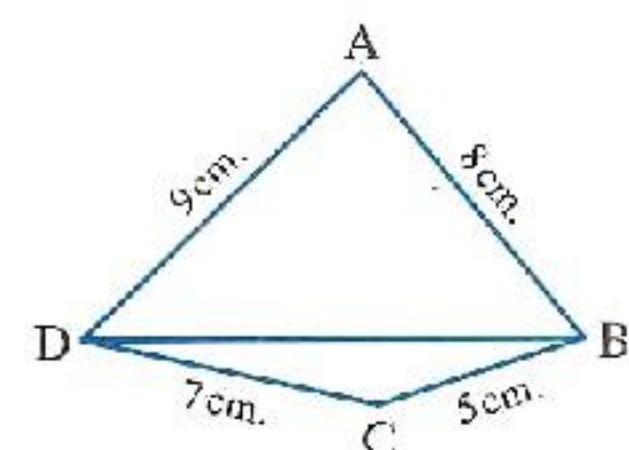
Find : The perimeter of  $\triangle BMC$



**[b] In the opposite figure :**

$ABCD$  is a quadrilateral where  
 $AB = 8$  cm. ,  $AD = 9$  cm.  
 $BC = 5$  cm. and  $CD = 7$  cm.

Prove that :  $m(\angle ABC) > m(\angle ADC)$



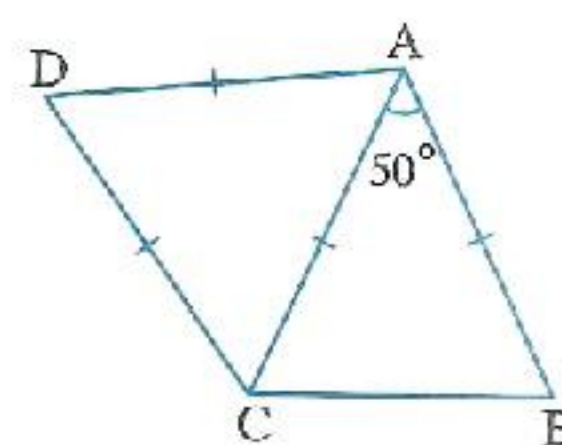


**4 [a] In the opposite figure :**

$$AB = AC = CD = DA$$

$$, m(\angle BAC) = 50^\circ$$

**Find with proof :  $m(\angle BCD)$**

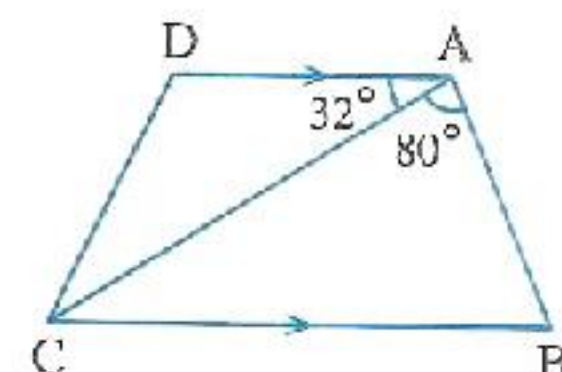


**[b] In the opposite figure :**

$$\overline{AD} \parallel \overline{BC}, m(\angle BAC) = 80^\circ$$

$$, m(\angle CAD) = 32^\circ$$

**Prove that :  $BC > AB$**



**5 [a] In the opposite figure :**

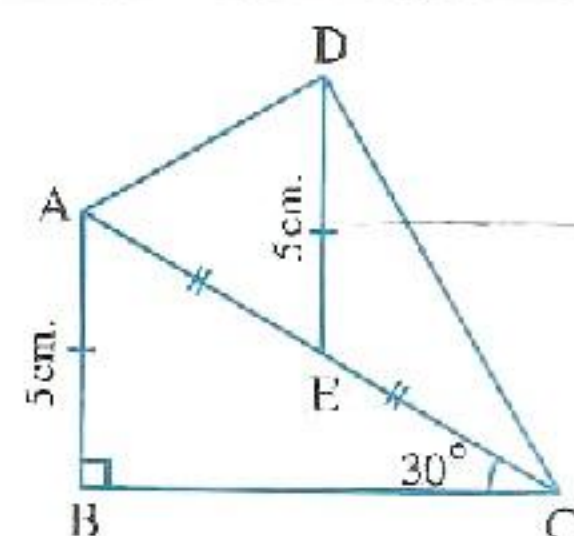
$\triangle ABC$  is right-angled at B

$$, m(\angle ACB) = 30^\circ, AB = 5 \text{ cm.}$$

$$, DE = 5 \text{ cm.}$$

and E is the midpoint of  $\overline{AC}$

**Prove that :  $m(\angle ADC) = 90^\circ$**



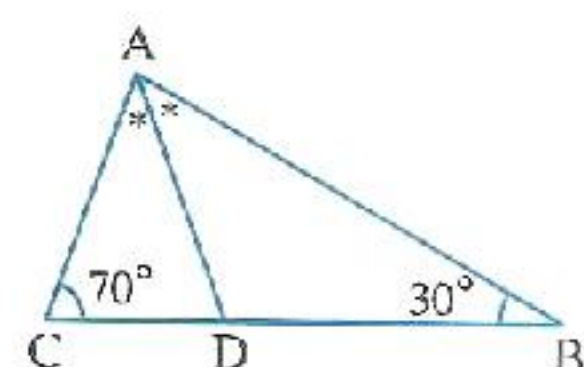
**[b] In the opposite figure :**

$ABC$  is a triangle in which

$$m(\angle C) = 70^\circ, m(\angle B) = 30^\circ$$

$\overline{AD}$  bisects  $\angle BAC$

**Prove that :  $AD = AC$**



**8**

**El-Dakahlia Governorate**



**Maths Supervision**

*Answer the following questions :*

**1 Choose the correct answer from those given :**

**[1]** The length of the median drawn from the vertex of the right angle in the right-angled triangle equals ..... the length of the hypotenuse.

(a) half

(b) twice

(c) third

(d) quarter

**[2]** The point of intersection of the medians of the triangle divides each median in the ratio ..... from the vertex.

(a) 1 : 2

(b) 2 : 1

(c) 2 : 3

(d) 1 : 3

**[3]** The measure of the exterior angle of an equilateral triangle equals .....

(a)  $60^\circ$

(b)  $90^\circ$

(c)  $120^\circ$

(d)  $360^\circ$



4 If the measures of two angles in a triangle are  $55^\circ$  ,  $70^\circ$  , then the triangle is .....

- (a) isosceles.      (b) equilateral.      (c) scalenc.      (d) obtuse.

5 The lengths of two sides in an isosceles triangle are 4 cm. , 9 cm. , then the length of the third side is ..... cm.

- (a) 4      (b) 5      (c) 9      (d) 13

2 Complete each of the following :

1 The longest side in the right-angled triangle is .....

2 The bisector of the vertex angle of an isosceles triangle ..... the base and is perpendicular to it.

3 In the isosceles triangle ABC , if  $AB = AC$  ,  $m(\angle A) = 70^\circ$  , then  $AB < \dots\dots\dots$

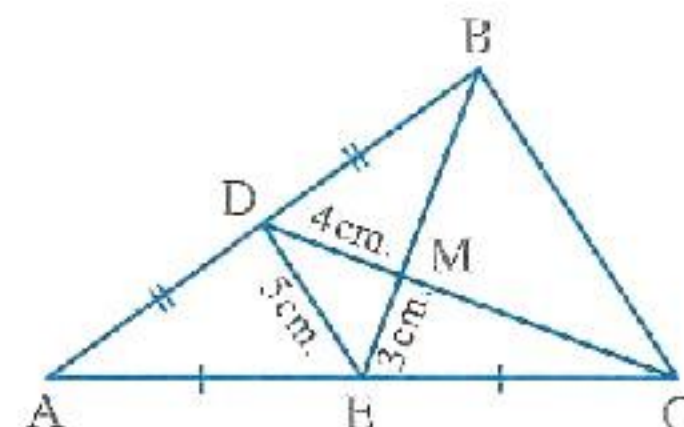
4 In a triangle , if the lengths of two sides are 4 cm , 6 cm , then the length of the third side  $\in ] \dots\dots\dots , \dots\dots\dots [$

3 [a] In the opposite figure :

M is the intersection point of the medians of  $\triangle ABC$

,  $ME = 3$  cm. ,  $MD = 4$  cm. ,  $DE = 5$  cm.

Find : The perimeter of  $\triangle MBC$



[b] Arrange ascendingly the measures of the angles of  $\triangle ABC$  if  $AC = 12$  cm. ,  $BC = 5$  cm. and  $AB = 13$  cm.

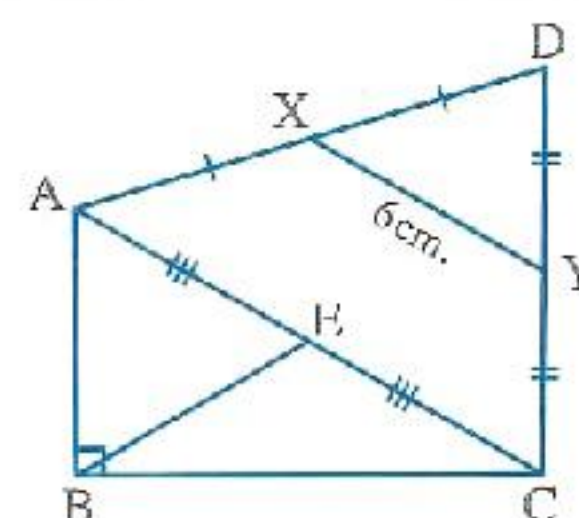
4 [a] In the opposite figure :

X is the midpoint of  $\overline{AD}$  , Y is the midpoint of  $\overline{CD}$

, E is the midpoint of  $\overline{AC}$

,  $m(\angle ABC) = 90^\circ$  ,  $XY = 6$  cm.

Find : The length of  $\overline{BE}$

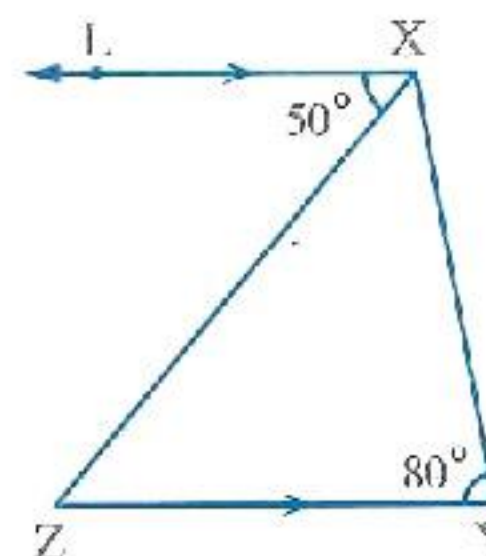


[b] In the opposite figure :

$\overrightarrow{XL} \parallel \overrightarrow{YZ}$  ,  $m(\angle Y) = 80^\circ$

,  $m(\angle LXZ) = 50^\circ$

Prove that :  $XY = YZ$





**5 [a]** In the opposite figure :

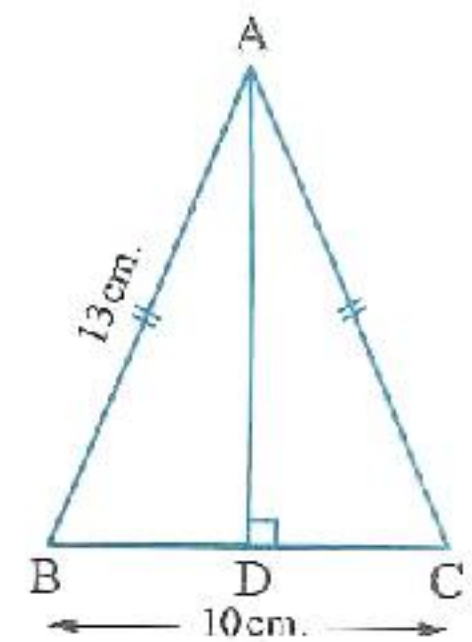
$$AB = AC, \overline{AD} \perp \overline{BC}$$

$$, AB = 13 \text{ cm.}$$

$$, BC = 10 \text{ cm.}$$

Find : **1** The length of  $\overline{BD}$

**2** The area of  $\triangle ABC$



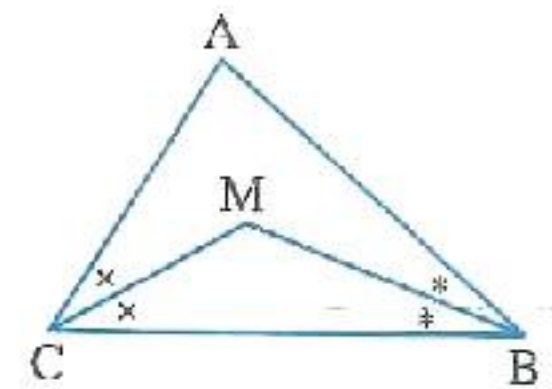
**[b]** In the opposite figure :

$ABC$  is a triangle ,  $AB > AC$

,  $\overrightarrow{BM}$  bisects  $\angle ABC$

,  $\overrightarrow{CM}$  bisects  $\angle ACB$

Prove that :  $MB > MC$



**9**

**Suez Governorate**



**Math Inspection**

*Answer the following questions :*

**1** Complete :

**1**  $\triangle ABC$  is an isosceles triangle ,  $AB = 3 \text{ cm.}$  ,  $BC = 7 \text{ cm.}$  , then  $AC = \dots\dots\dots \text{ cm.}$

**2** In  $\triangle ABC$  , if  $AB = 3 \text{ cm.}$  ,  $BC = 5 \text{ cm.}$  , then  $AC \in ] \dots\dots\dots , \dots\dots\dots [$

**3** The measure of the exterior angle of the equilateral triangle is  $\dots\dots\dots^\circ$

**4** The bisector of the vertex angle of the isosceles triangle  $\dots\dots\dots$  and  $\dots\dots\dots$

**2** Choose the correct answer :

**1** The triangle which has 3 axes of symmetry is  $\dots\dots\dots$  triangle.

(a) an equilateral (b) an isosceles (c) a scalene (d) a right-angled

**2** If the measure of the vertex angle of the isosceles triangle is  $80^\circ$  , then the measure of one base angle is  $\dots\dots\dots$

(a)  $100^\circ$  (b)  $50^\circ$  (c)  $80^\circ$  (d)  $40^\circ$

**3** If  $A \in$  the axis of  $\overline{BC}$  , then  $\overline{AB} \dots\dots\dots \overline{AC}$

(a)  $=$  (b)  $\equiv$  (c)  $//$  (d)  $\perp$

**4** The intersection point of the medians of any triangle divides each median in the ratio  $\dots\dots\dots$  from the vertex.

(a)  $2 : 1$  (b)  $1 : 2$  (c)  $1 : 3$  (d)  $3 : 1$



## Geometry

- 5 ABC is an isosceles triangle in which :  $AB = AC = 4$  cm. ,  $m(\angle A) = 60^\circ$   
 , then its perimeter is ..... cm.

(a) 10                      (b) 12                      (c) 6                      (d) 8

- 3 [a] In the triangle ABC ,  $m(\angle B) = 40^\circ$  ,  $m(\angle C) = 80^\circ$

Arrange its side lengths ascendingly.

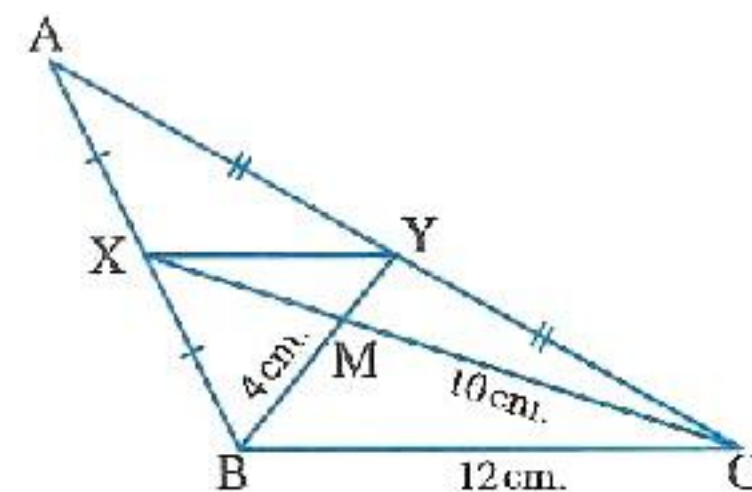
- [b] In the opposite figure :

X and Y are the midpoints of  $\overline{AB}$  and  $\overline{AC}$  respectively

,  $\overline{BY} \cap \overline{CX} = \{M\}$  ,  $MC = 10$  cm.

,  $MB = 4$  cm. ,  $BC = 12$  cm.

Find : The perimeter of  $\triangle MXY$



- 4 [a] In the opposite figure :

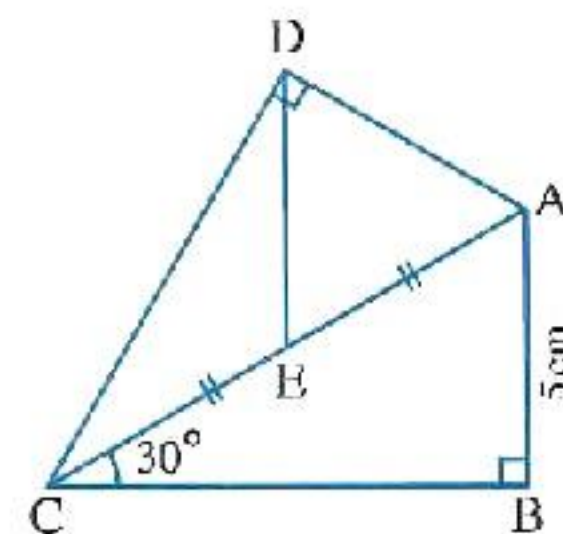
$m(\angle B) = m(\angle ADC) = 90^\circ$

,  $m(\angle ACB) = 30^\circ$  ,  $AB = 5$  cm.

, E is the midpoint of  $\overline{AC}$

Find : 1 AC

2 DE

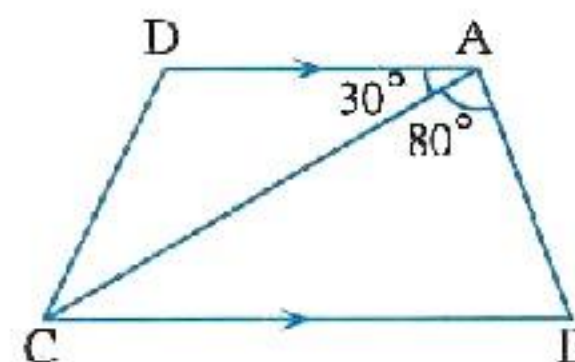


- [b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$  ,  $m(\angle CAD) = 30^\circ$

,  $m(\angle BAC) = 80^\circ$

Prove that :  $BC > AB$

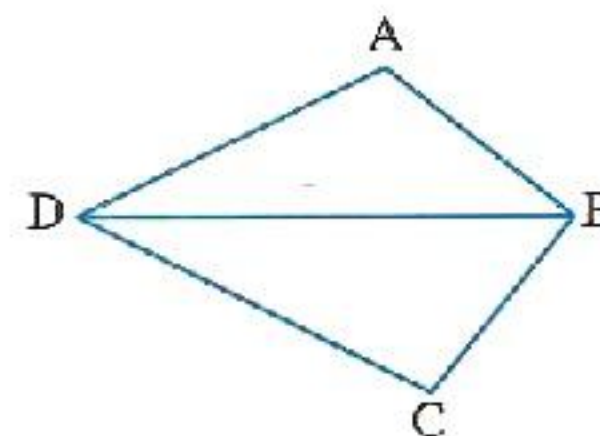


- 5 [a] In the opposite figure :

$AD > AB$  and  $DC > BC$

Prove that :

$m(\angle ABC) > m(\angle ADC)$



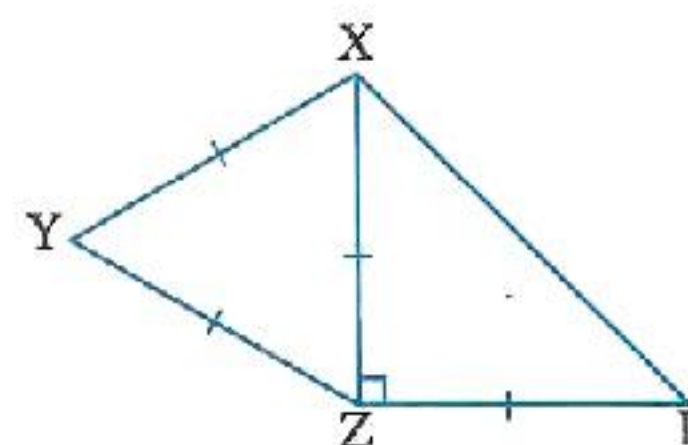
- [b] In the opposite figure :

$m(\angle XZL) = 90^\circ$

,  $LZ = ZX = XY = YZ$

Find : 1  $m(\angle YXZ)$

2  $m(\angle LXY)$







Answer the following questions :

**1 Choose the correct answer :**

- 1 The angle whose measure is more than  $90^\circ$  and less than  $180^\circ$  is .....  
 (a) acute. (b) right. (c) obtuse. (d) straight.
- 2 The point of intersection of the medians of the triangle divides each of them by the ratio ..... from the base.  
 (a) 2 : 1 (b) 1 : 2 (c) 3 : 4 (d) 1 : 1
- 3 In  $\triangle XYZ$ ,  $XY = XZ$ ,  $m(\angle Y) = 40^\circ$ , then  $m(\angle X) =$  .....  
 (a)  $40^\circ$  (b)  $55^\circ$  (c)  $70^\circ$  (d)  $100^\circ$
- 4 The measure of the exterior angle of an equilateral triangle is .....  
 (a)  $120^\circ$  (b)  $60^\circ$  (c)  $90^\circ$  (d)  $30^\circ$
- 5 In  $\triangle ABC$ , if  $AB > AC$ , then  $m(\angle B)$  .....  $m(\angle C)$   
 (a)  $>$  (b)  $<$  (c)  $\geq$  (d)  $=$

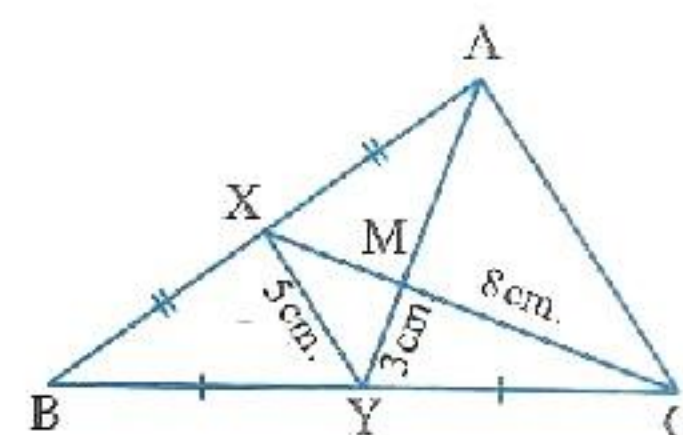
**2 Complete the following :**

- 1 In  $\triangle DEF$ , if  $m(\angle E) = 120^\circ$ , then the longest side is .....
- 2 The isosceles triangle has ..... axis of symmetry.
- 3 If  $\overline{AB} \equiv \overline{CD}$  and  $AB = 6$  cm., then  $AB + CD =$  ..... cm.
- 4 The length of the side opposite to the angle whose measure is  $30^\circ$  in the right-angled triangle equals ..... the length of the hypotenuse.

**3 [a] In the opposite figure :**

$ABC$  is a triangle,  $X$  is the midpoint of  $\overline{AB}$ ,  
 $Y$  is the midpoint of  $\overline{BC}$ ,  $\overline{XC} \cap \overline{AY} = \{M\}$   
 $XY = 5$  cm.,  $CM = 8$  cm.,  $YM = 3$  cm.

Find : The perimeter of the triangle  $MAC$



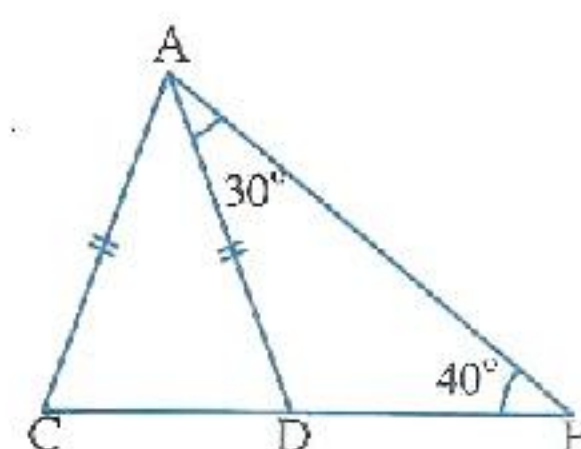
**[b] In the opposite figure :**

$AD = AC$ ,  $D \in \overline{BC}$

$m(\angle DAB) = 30^\circ$

$m(\angle ABD) = 40^\circ$

Prove that :  $AB = CB$





## Geometry

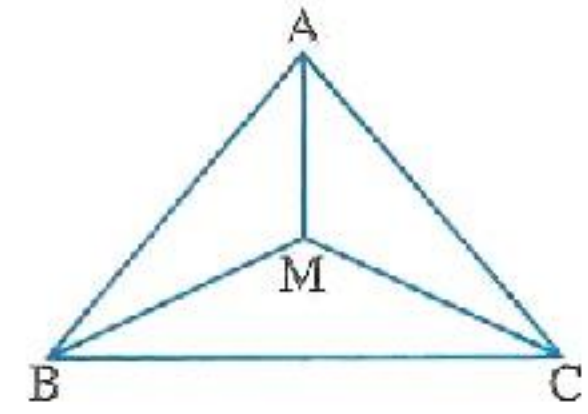
### 4 [a] In the opposite figure :

ABC is a triangle in which

M is a point inside it.

**Prove that :**

$MA + MB + MC > \frac{1}{2}$  the perimeter of the triangle ABC



### [b] XYZ is a triangle in which : $m(\angle X) = 40^\circ$ , $m(\angle Y) = 80^\circ$

Arrange the lengths of sides of  $\triangle XYZ$  in an ascending order.

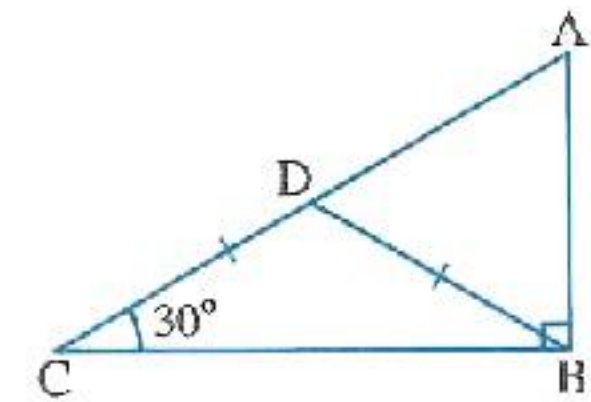
### 5 [a] In the opposite figure :

ABC is a right-angled triangle at B

,  $m(\angle C) = 30^\circ$  ,  $D \in \overline{AC}$  where  $DB = DC$

**Prove that :**

$\triangle ABD$  is an equilateral triangle.



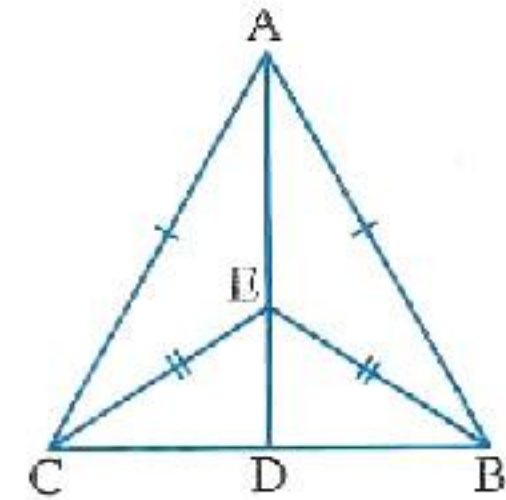
### [b] In the opposite figure :

$AB = AC$  and  $EB = EC$

,  $\overrightarrow{AE} \cap \overline{BC} = \{D\}$

**Prove that :** [1]  $\overleftrightarrow{AE}$  is the axis of  $\overline{BC}$

[2]  $BD = DC$



## 11 Beni Suef Governorate



Directorate of Official Language Schools  
Education Administration

**Answer the following questions :**

### 1 Choose the correct answer from those given :

#### [1] In the opposite figure :

$m(\angle ABC) = 90^\circ$  ,  $m(\angle C) = 30^\circ$  and  $AC = 12$  cm.

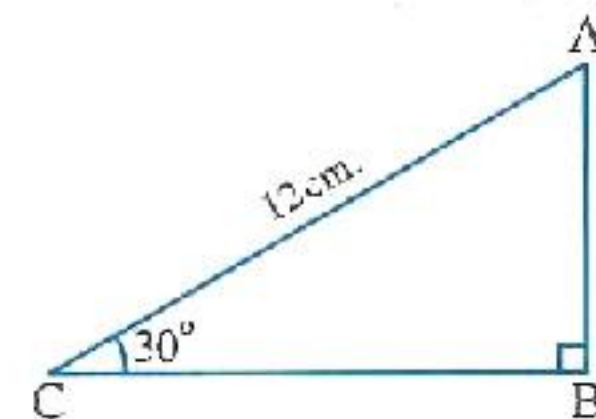
, then the length of  $\overline{AB} = \dots\dots\dots$  cm.

(a) 3

(b) 4

(c) 6

(d) 12



#### [2] If the lengths of two sides in an isosceles triangle are 2 cm. and 5 cm. , then the length of the third side is .....

(a) 2 cm.

(b) 3 cm.

(c) 5 cm.

(d) 7 cm.

#### [3] In $\triangle ABC$ , if $m(\angle A) > m(\angle C)$ , then .....

(a)  $AB > BC$

(b)  $AB < AC$

(c)  $AB < BC$

(d)  $AB = AC$



- 4 In  $\triangle ABC$ , if  $m(\angle A) = 30^\circ$ ,  $m(\angle B) = 70^\circ$ , then  $m(\angle C) = \dots\dots\dots$   
 (a)  $30^\circ$  (b)  $70^\circ$  (c)  $80^\circ$  (d)  $100^\circ$
- 5 If  $ABC$  is a right-angled triangle at  $B$ ,  $AB = 6$  cm.,  $BC = 8$  cm., then  $AC = \dots\dots\dots$  cm.  
 (a) 10 (b) 28 (c) 100 (d) 14

2 Complete each of the following :

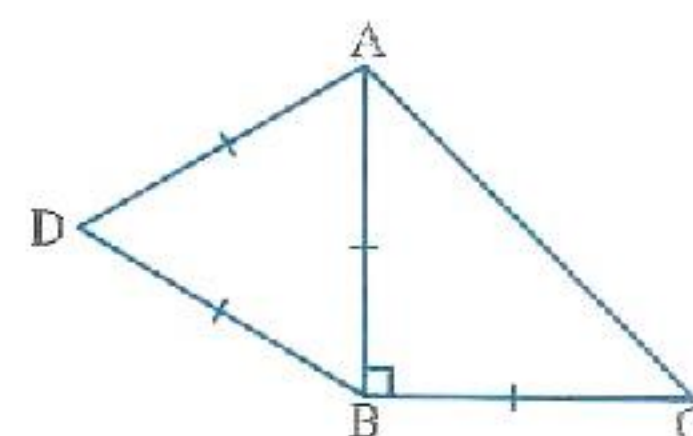
- 1 In  $\triangle ABC$ , if  $m(\angle A) = 30^\circ$  and  $m(\angle B) = 90^\circ$ , then  $BC = \dots\dots\dots AC$
- 2 If two angles of a triangle are congruent, then the two sides opposite to these two angles are  $\dots\dots\dots$  and the triangle is  $\dots\dots\dots$
- 3 The number of axes of symmetry of the isosceles triangle equals  $\dots\dots\dots$
- 4 In  $\triangle ABC$ , if  $m(\angle A) = 40^\circ$  and  $m(\angle B) = 60^\circ$ , then the shortest side in the triangle is  $\dots\dots\dots$

3 [a] In the opposite figure :

$$AB = BD = DA = BC$$

$$\text{and } m(\angle ABC) = 90^\circ$$

Find :  $m(\angle CAD)$



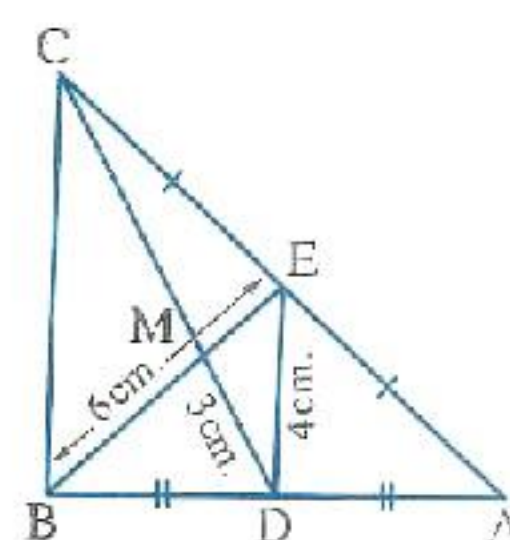
[b] In the opposite figure :

$D$  and  $E$  are the midpoints of  $\overline{AB}$  and  $\overline{AC}$  respectively

$$, \overline{BE} \cap \overline{DC} = \{M\}, DE = 4 \text{ cm.}$$

$$, MD = 3 \text{ cm. and } BE = 6 \text{ cm.}$$

Find : The perimeter of  $\triangle BMC$



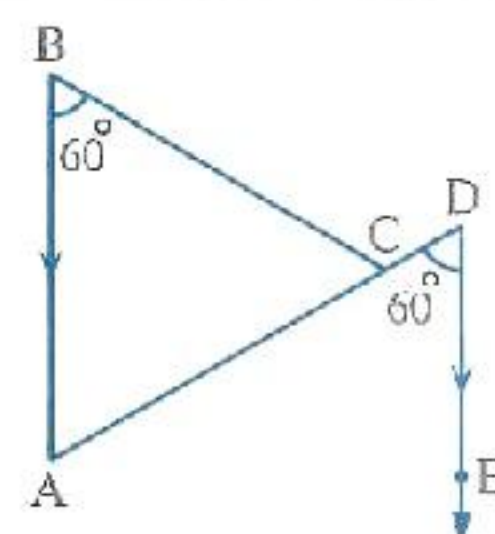
4 [a] In the opposite figure :

$$\overline{DE} \parallel \overline{BA}$$

$$, C \in \overline{AD}$$

$$\text{and } m(\angle ABC) = m(\angle ADE) = 60^\circ$$

Prove that :  $\triangle ABC$  is an equilateral triangle.



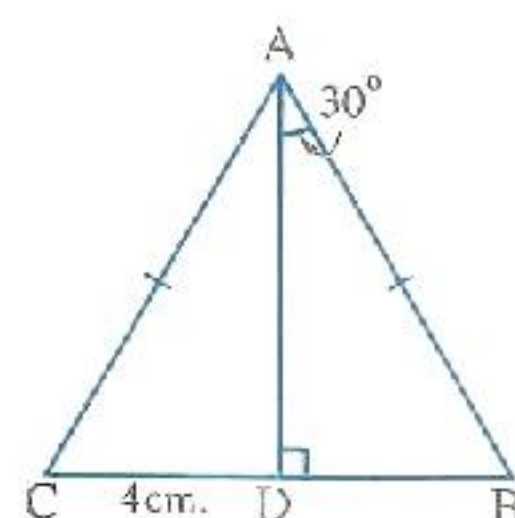
[b] In the opposite figure :

$$AB = AC, CD = 4 \text{ cm.}$$

$$, \overline{AD} \perp \overline{BC} \text{ and } m(\angle BAD) = 30^\circ$$

Find : 1 The length of  $\overline{DB}$

2  $m(\angle BAC)$





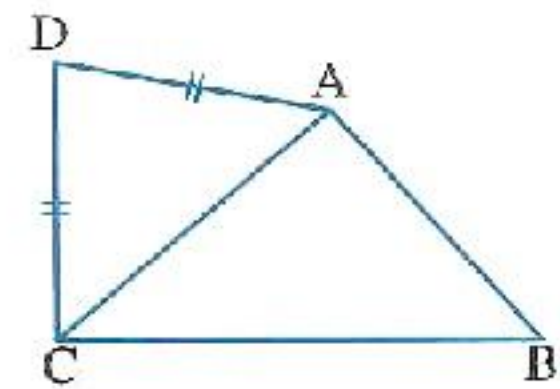
## Geometry

### 5 [a] In the opposite figure :

ABCD is a quadrilateral in which

$BC > BA$  and  $DA = DC$

Prove that :  $m(\angle BAD) > m(\angle BCD)$

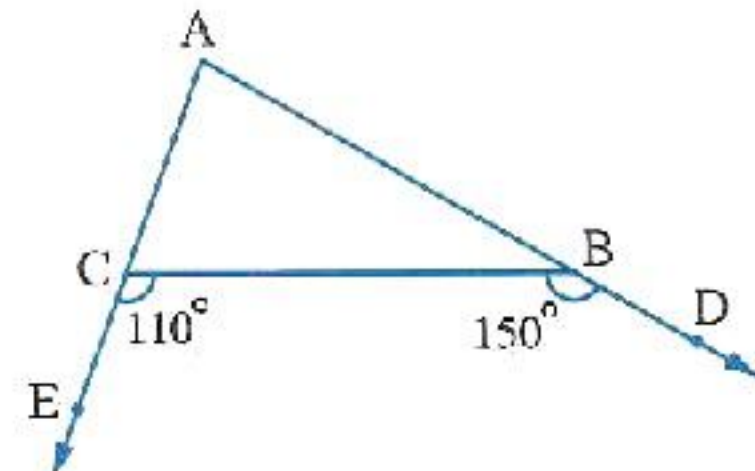


### [b] In the opposite figure :

ABC is a triangle ,  $D \in \overrightarrow{AB}$  ,  $E \in \overrightarrow{AC}$

,  $m(\angle DBC) = 150^\circ$  ,  $m(\angle ECB) = 110^\circ$

Prove that :  $CB > AB$



**12 Aswan Governorate**



**Edfo District  
Mathematics Supervision**

*Answer the following questions :*

### 1 Choose the correct answer from the given ones :

1 XYZ is an isosceles triangle ,  $m(\angle X) = 100^\circ$  , then  $m(\angle Y) = \dots\dots\dots$

- (a)  $100^\circ$                       (b)  $80^\circ$                       (c)  $60^\circ$                       (d)  $40^\circ$

2 ABC is a right-angled triangle at B ,  $AB = 6$  cm. ,  $m(\angle A) = 2 m(\angle C)$  , then  $AC = \dots\dots\dots$  cm.

- (a) 6                              (b) 3                              (c) 12                              (d) 24

3 If  $C \in$  the axis of symmetry of  $\overline{AB}$  , then  $AC - BC = \dots\dots\dots$

- (a) 0                              (b) 1                              (c) 2                              (d) 3

4 If  $\overline{AD}$  is a median in  $\triangle ABC$  , M is the point of concurrence of the medians , then  $AD = \dots\dots\dots DM$

- (a)  $\frac{1}{2}$                               (b)  $\frac{1}{3}$                               (c)  $\frac{2}{3}$                               (d) 3

5 The number of diagonals of the hexagon is  $\dots\dots\dots$

- (a) 3                              (b) 6                              (c) 9                              (d) 12

### 2 Complete the following :

1 The bisector of the vertex angle of the isosceles triangle bisects the base and  $\dots\dots\dots$

2 A rectangle whose two dimensions are 8 cm. , 6 cm. , then the length of its diagonal is  $\dots\dots\dots$  cm.

3 The longest side in the right-angled triangle is  $\dots\dots\dots$

4 In  $\triangle ABC$  , if  $AB > BC$  , then  $m(\angle A) < \dots\dots\dots$



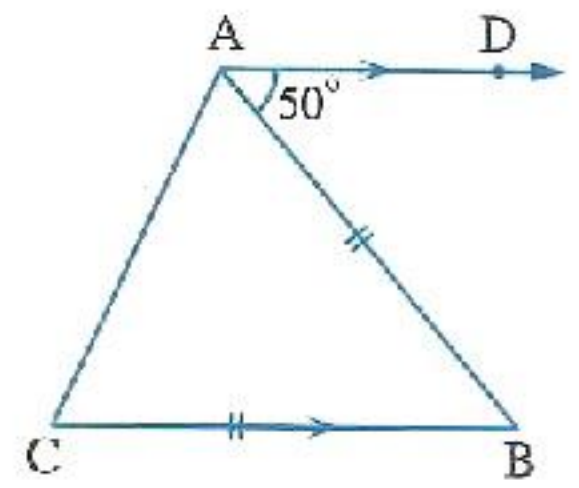
**3 [a] In the opposite figure :**

$$\overrightarrow{AD} \parallel \overrightarrow{BC}$$

$$, AB = BC$$

$$, m(\angle BAD) = 50^\circ$$

**Find by proof :**  $m(\angle DAC)$

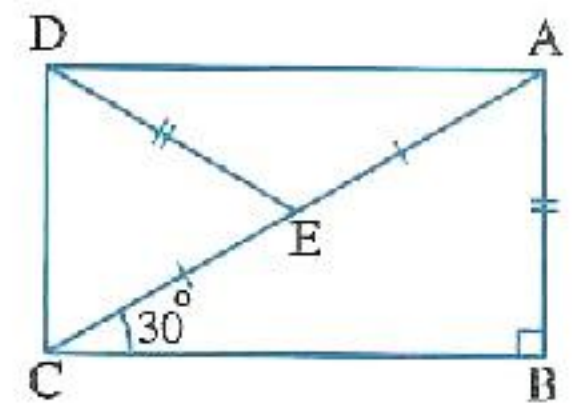


**[b] In the opposite figure :**

$$AB = DE, E \text{ is the midpoint of } \overline{AC}$$

$$, m(\angle ABC) = 90^\circ, m(\angle ACB) = 30^\circ$$

**Prove that :**  $m(\angle ADC) = 90^\circ$



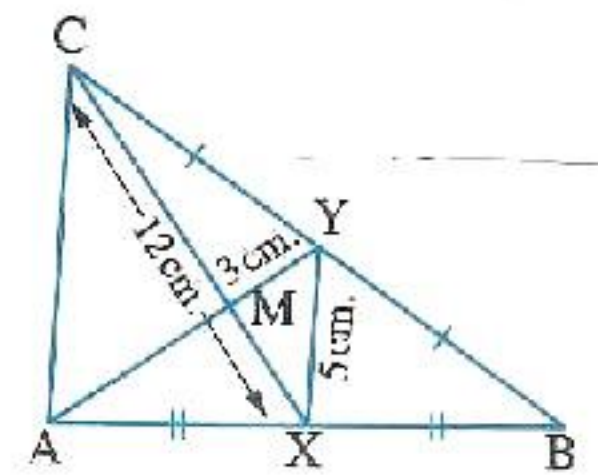
**4 [a] In the opposite figure :**

ABC is a triangle in which Y is the midpoint of  $\overline{CB}$

, X is the midpoint of  $\overline{AB}$ ,  $\overline{AY} \cap \overline{XC} = \{M\}$

$$, YM = 3 \text{ cm.}, YX = 5 \text{ cm.}, CX = 12 \text{ cm.}$$

**Find :** The perimeter of  $\triangle AMC$

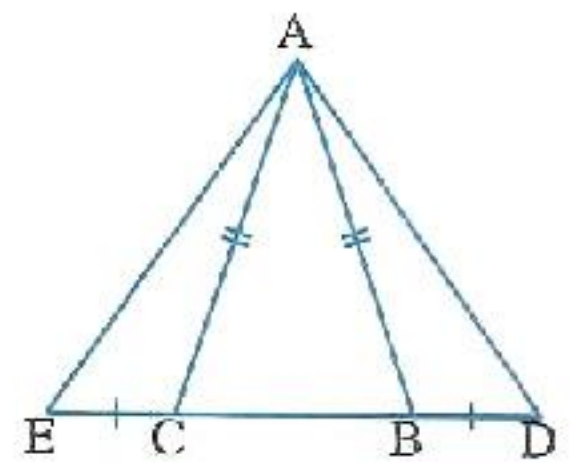


**[b] In the opposite figure :**

$$B \in \overline{DE}, C \in \overline{DE}$$

$$, AB = AC, BD = CE$$

**Prove that :**  $AD = AE$



**5 [a] XYZ is a triangle,  $XY = 6 \text{ cm.}$ ,  $YZ = 7 \text{ cm.}$ ,  $XZ = 5 \text{ cm.}$**

**Arrange the measures of angles of  $\triangle XYZ$  ascendingly.**

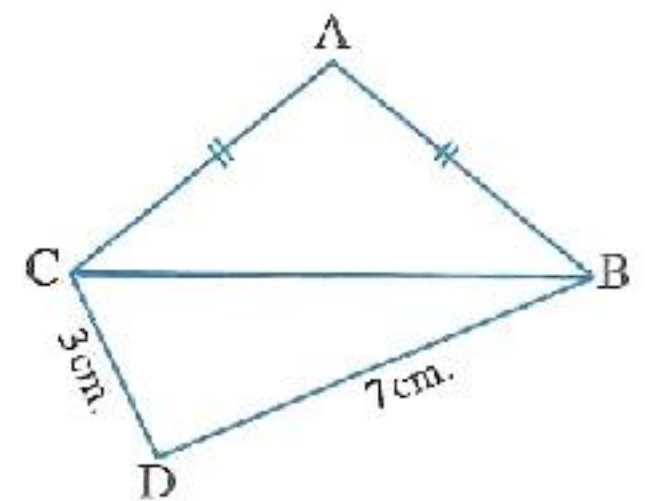
**[b] In the opposite figure :**

$$AB = AC$$

$$, BD = 7 \text{ cm.}$$

$$, DC = 3 \text{ cm.}$$

**Prove that :**  $m(\angle ACD) > m(\angle ABD)$





# كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9





حمل الآن

مجاناً وحصرياً

# امتحانات رقم (2)

## الترم الاول







1

Cairo Governorate

Heliopolis Educational Zone  
Maths Supervision*Answer the following questions :***1 Complete :**

- 1 The number of symmetry axes of the equilateral triangle is .....
- 2 The longest side in the right-angled triangle is .....
- 3 The base angles of the isosceles triangle are .....
- 4 If 10 cm. , 5 cm. and  $X$  cm. are the side lengths of an isosceles triangle , then  $X =$  .....
- 5 ABC is a right-angled triangle at B ,  $m(\angle A) = 30^\circ$  ,  $AC = 10$  cm. , then  $CB =$  ..... cm.
- 6 In  $\triangle ABC$  ,  $m(\angle A) = 30^\circ$  and  $m(\angle B) = 90^\circ$  , then  $BC =$  .....  $AC$

**2 Choose the correct answer from those given :**

- 1 The point of concurrence of the medians of the triangle divides each median in the ratio of ..... from its base.  
(a) 1 : 2                      (b) 2 : 1                      (c) 1 : 3                      (d) 2 : 3
- 2 The length of the side opposite to the angle of measure  $30^\circ$  in the right-angled triangle equals ..... the length of the hypotenuse.  
(a)  $\frac{1}{2}$                       (b)  $\frac{1}{3}$                       (c)  $\frac{1}{4}$                       (d) 2
- 3  $\triangle XYZ$  is an isosceles triangle in which  $m(\angle X) = 100^\circ$  , then  $m(\angle Y) =$  .....  
(a)  $100^\circ$                       (b)  $80^\circ$                       (c)  $60^\circ$                       (d)  $40^\circ$
- 4 XYZ is a triangle in which  $m(\angle Z) = 70^\circ$  and  $m(\angle Y) = 60^\circ$  , then  $YZ$  .....  $XY$   
(a)  $>$                       (b)  $<$                       (c)  $=$                       (d) twice
- 5 The measure of the exterior angle of the equilateral triangle equals .....  
(a)  $30^\circ$                       (b)  $60^\circ$                       (c)  $90^\circ$                       (d)  $120^\circ$
- 6 In  $\triangle ABC$  , if  $AB = 4$  cm. ,  $BC = 6$  cm. , then  $AC \in$  .....  
(a)  $]2 , 4[$                       (b)  $[2 , 10]$                       (c)  $]2 , 10[$                       (d)  $[0 , 10]$



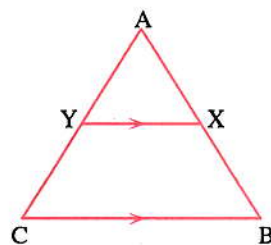
**3 [a] In the opposite figure :**

$$AB = AC$$

$$, \overline{XY} \parallel \overline{BC}$$

**Prove that :**

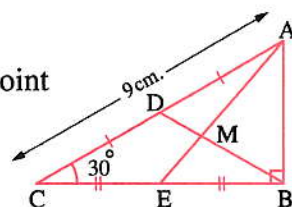
$\triangle AXY$  is an isosceles triangle.



**[b] In the opposite figure :**

$m(\angle ABC) = 90^\circ$ ,  $m(\angle C) = 30^\circ$ ,  $AC = 9$  cm. , D is the midpoint of  $\overline{AC}$ , E is the midpoint of  $\overline{BC}$ ,  $\overline{BD} \cap \overline{AE} = \{M\}$

**Find :** the length of each of  $\overline{BD}$ ,  $\overline{BM}$  and  $\overline{AB}$



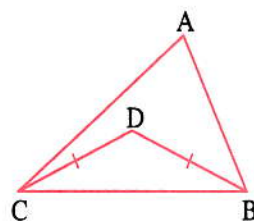
**4 [a] In the opposite figure :**

$$DB = DC$$

$$, m(\angle ABC) > m(\angle ACB)$$

**Prove that :**

$$m(\angle ABD) > m(\angle ACD)$$



**[b] In the opposite figure :**

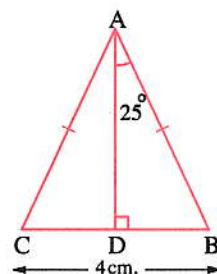
$$AB = AC, \overline{AD} \perp \overline{BC}$$

$$, m(\angle BAD) = 25^\circ$$

$$, BC = 4$$
 cm.

**Find :** 1  $m(\angle DAC)$

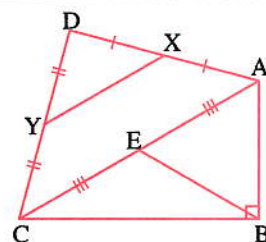
2 The length of  $\overline{DC}$



**5 [a] In the opposite figure :**

$m(\angle ABC) = 90^\circ$ , E is the midpoint of  $\overline{AC}$   
 , X is the midpoint of  $\overline{AD}$   
 , Y is the midpoint of  $\overline{CD}$

**Prove that :**  $XY = BE$



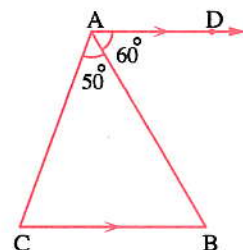
**[b] In the opposite figure :**

$$\overline{AD} \parallel \overline{CB}$$

$$, m(\angle BAD) = 60^\circ$$

$$, m(\angle BAC) = 50^\circ$$

**Prove that :**  $AB > AC$





2

Cairo Governorate



Western Cairo Educational Zone  
Mathematics Inspection

Answer the following questions :

1 Choose the correct answer :

- 1 If M is the point of intersection of the medians of  $\triangle ABC$ ,  $\overline{AD}$  is a median of length 9 cm. , then  $AM = \dots\dots\dots$  cm.  
(a) 6 (b) 3 (c) 4 (d) 2
- 2 In  $\triangle XYZ$ ,  $\overline{XY}$  is the shortest side , then the angle of the smallest measure is .....  
(a) X (b) Y (c) Z (d) otherwise.
- 3 The supplement of the angle whose measure is  $30^\circ$  is an angle of measure .....  
(a)  $60^\circ$  (b)  $180^\circ$  (c)  $150^\circ$  (d)  $90^\circ$
- 4 If the measures of two angles in a triangle are  $42^\circ$ ,  $69^\circ$ , then the triangle is .....  
(a) isosceles. (b) scalene. (c) equilateral. (d) right-angled
- 5 The numbers which can not be side lengths of a triangle are .....  
(a) 3, 3, 3 (b) 3, 3, 4 (c) 3, 3, 5 (d) 3, 3, 6
- 6 If A  $\in$  the axis of symmetry of  $\overline{BC}$ , then  $\overline{AB} \dots\dots\dots \overline{AC}$   
(a)  $\equiv$  (b)  $=$  (c)  $//$  (d)  $\perp$

2 Complete the following :

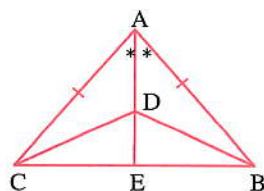
- 1 In  $\triangle ABC$ , if  $m(\angle A) = 30^\circ$  and  $m(\angle B) = 90^\circ$ , then  $BC = \dots\dots\dots AC$
- 2 In  $\triangle ABC$ , if  $m(\angle B) = 70^\circ$  and  $m(\angle C) = 50^\circ$ , then  $AC \dots\dots\dots AB$
- 3 If  $m(\angle A) = 110^\circ$ , then  $m(\text{reflex } \angle A) = \dots\dots\dots^\circ$
- 4 If a straight line intersects two parallel straight lines , then each two corresponding angles are .....
- 5 In the right-angled triangle , the hypotenuse is the ..... side.
- 6 The triangle whose side lengths are  $(2x - 1)$  cm. ,  $(x + 3)$  cm. , 7 cm. becomes an equilateral triangle when  $x = \dots\dots\dots$

3 [a] In the opposite figure :

In  $\triangle ABC$ ,  $AB = AC$   
 $\overline{AE}$  bisects  $\angle BAC$   
 $\overline{AE} \cap \overline{BC} = \{E\}$ ,  $D \in \overline{AE}$

Prove that : 1  $BE = \frac{1}{2} BC$

2  $BD = CD$



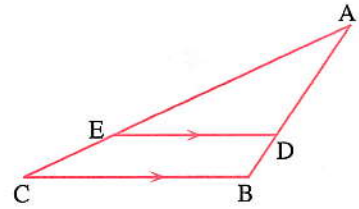


**[b] In the opposite figure :**

ABC is an obtuse-angled triangle at B

,  $\overline{DE} \parallel \overline{BC}$

**Prove that :**  $AE > AD$



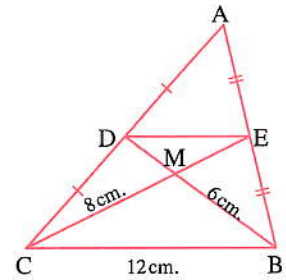
**4 [a] In the opposite figure :**

D, E are the midpoints of  $\overline{AC}$ ,  $\overline{AB}$

,  $\overline{CE} \cap \overline{DB} = \{M\}$ ,  $MB = 6$  cm.

,  $MC = 8$  cm.,  $BC = 12$  cm.

**Find :** the perimeter of  $\triangle MDE$

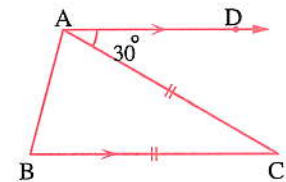


**[b] In the opposite figure :**

ABC is a triangle in which  $AC = BC$

,  $\overline{AD} \parallel \overline{BC}$ ,  $m(\angle DAC) = 30^\circ$

**Find with proof :** the measures of the angles of  $\triangle ABC$



**5 [a] In  $\triangle ABC$ , if  $m(\angle A) = 40^\circ$ ,  $m(\angle B) = 75^\circ$ ,  $m(\angle C) = 65^\circ$ , arrange the lengths of the sides of this triangle descendingly.**

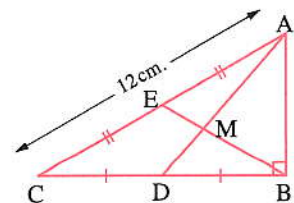
**[b] In the opposite figure :**

$\triangle ABC$  is right-angled at B

, E and D are the midpoints of  $\overline{AC}$  and  $\overline{BC}$

,  $AC = 12$  cm.,  $\overline{BE} \cap \overline{AD} = \{M\}$

**Find :** the length of each of  $\overline{BE}$ ,  $\overline{ME}$



3

Giza Governorate



Math's Inspection

**Answer the following questions :**

**1 Choose the correct answer :**

**[1]** The intersecting point of the medians of the triangle divides each median in the ratio of ..... from the base.

- (a) 1 : 2                      (b) 2 : 1                      (c) 3 : 2                      (d) 2 : 3

**[2]** In any triangle XYZ,  $YX$  .....  $XZ + ZY$

- (a) >                      (b) =                      (c) <



- 3 ABC is a triangle,  $m(\angle A) = 110^\circ$ , then the longest side is .....
- (a)  $\overline{AC}$  (b)  $\overline{BC}$  (c)  $\overline{AB}$
- 4 If  $\overline{AD}$  is a median of  $\triangle ABC$ , M is the point of concurrence of the medians,  $AD = 12$  m., then  $MD = \dots\dots\dots$  cm.
- (a) 4 (b) 8 (c) 12 (d) 30
- 5 If the measure of the vertex angle of an isosceles triangle is  $80^\circ$ , then the measure of its base angle is .....
- (a)  $100^\circ$  (b)  $50^\circ$  (c)  $80^\circ$  (d)  $40^\circ$
- 6 The ..... triangle has 1 axis of symmetry.
- (a) isosceles (b) equilateral (c) scalene

## 2 Complete :

- 1 In the opposite figure :

$AC = \dots\dots\dots$  cm.

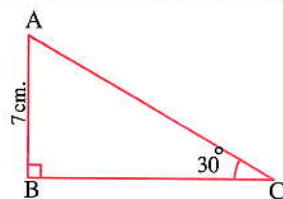
- 2 In  $\triangle ABC$ , if  $m(\angle A) = m(\angle C)$ , then  $\overline{AB} \equiv \dots\dots\dots$

- 3 The length of the median drawn from the vertex of the right-angled triangle equals ..... the length of the hypotenuse.

- 4 The measure of the exterior angle of the equilateral triangle equals ..... $^\circ$

- 5 The bisector of the vertex angle of an isosceles triangle bisects the base and .....

- 6  $\triangle ABC$  is isosceles,  $AB = 3$  cm.,  $BC = 7$  cm., then  $AC = \dots\dots\dots$  cm.



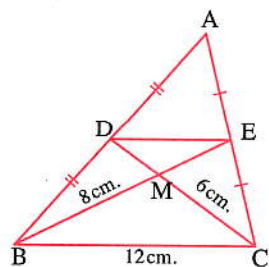
## 3 [a] In the opposite figure :

$\overline{BE}$ ,  $\overline{CD}$  are two medians in  $\triangle ABC$  intersecting at M

,  $CB = 12$  cm.,  $CM = 6$  cm.

and  $BM = 8$  cm.

**Find :** the perimeter of  $\triangle MDE$



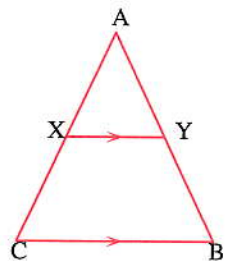
## [b] In the opposite figure :

$AB = AC$

,  $\overline{XY} \parallel \overline{CB}$

**Prove that :**

$AX = AY$

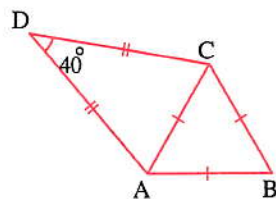




**4 [a] In the opposite figure :**

$m(\angle D) = 40^\circ$  ,  $DA = DC$   
and  $\triangle ABC$  is an equilateral triangle.

**Find :**  $m(\angle DCB)$



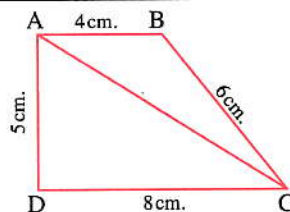
**[b] In  $\triangle ABC$  , if  $AB = 6$  cm. ,  $AC = 8$  cm. ,  $BC = 5$  cm. , arrange in an ascending order the angles of the triangle.**

**5 [a] In the opposite figure :**

$AB = 4$  cm. ,  $BC = 6$  cm.

$CD = 8$  cm. ,  $DA = 5$  cm.

**Prove that :**  $m(\angle BAD) > m(\angle BCD)$



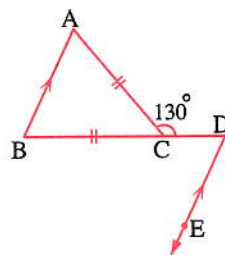
**[b] In the opposite figure :**

$C \in \overline{BD}$  ,  $\overline{DE} \parallel \overline{AB}$

$m(\angle ACD) = 130^\circ$

$AC = BC$

**Find :**  $m(\angle BDE)$



**4**

**Giza Governorate**



**Abu El-Nomros Directorate**

**Answer the following questions :**

**1 Choose the correct answer :**

**[1] If  $\triangle ABC$  is a right-angled triangle at A and  $AB = AC$   
 , then  $m(\angle B) = \dots\dots\dots$**

- (a)  $30^\circ$                       (b)  $45^\circ$                       (c)  $60^\circ$                       (d)  $90^\circ$

**[2] The triangle which has three axes of symmetry is  $\dots\dots\dots$**

- (a) scalene.                      (b) isosceles.                      (c) right-angled.                      (d) equilateral.

**[3] The point of concurrence of the medians of a triangle divides each median in the ratio of  $\dots\dots\dots$  from the vertex.**

- (a)  $1 : 2$                       (b)  $2 : 1$                       (c)  $2 : 3$                       (d)  $1 : 3$

**[4] The numbers which can not be side lengths of a triangle are  $\dots\dots\dots$**

- (a) 3 , 3 , 3                      (b) 3 , 3 , 4                      (c) 3 , 3 , 5                      (d) 3 , 3 , 6



- 5 The sum of measures of the accumulative angles at a point equals .....
- (a)  $60^\circ$  (b)  $180^\circ$  (c)  $270^\circ$  (d)  $360^\circ$
- 6 The measure of the exterior angle of the equilateral triangle equals .....
- (a)  $60^\circ$  (b)  $180^\circ$  (c)  $120^\circ$  (d)  $70^\circ$

2 Complete each of the following :

- 1 In  $\triangle ABC$ , if  $AB > BC$ , then  $m(\angle \dots) > m(\angle \dots)$
- 2 In  $\triangle ABC$ , if  $AB = 3$  cm.,  $BC = 7$  cm., then  $AC \in ] \dots, \dots [$
- 3 If  $\overline{AB} \equiv \overline{XY}$ , then  $AB - XY = \dots$
- 4 The length of the median of the right-angled triangle drawn from the vertex of the right angle equals ..... the length of the hypotenuse.
- 5 The median of an isosceles triangle from the vertex angle bisects ..... and is perpendicular to .....
- 6 The longest side in the right-angled triangle is .....

3 [a] In the opposite figure :

D and E are the midpoints of  $\overline{AC}$  and  $\overline{AB}$ ,  $\overline{BD} \cap \overline{CE} = \{M\}$   
 ,  $MB = 6$  cm.  
 ,  $MC = 8$  cm.  
 ,  $BC = 12$  cm.

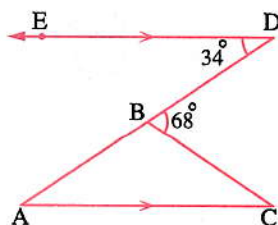
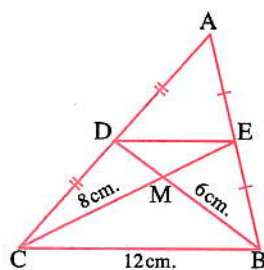
Find : the perimeter of  $\triangle MDE$

[b] In the opposite figure :

$\overline{DE} \parallel \overline{AC}$ ,  $m(\angle EDA) = 34^\circ$   
 ,  $m(\angle DBC) = 68^\circ$

Prove that :  $\triangle ABC$  is an isosceles triangle.

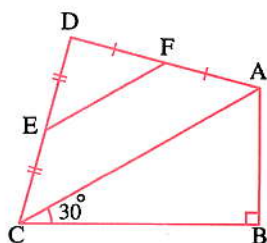
[c] Complete : In the isosceles triangle, the two base angles are ..... in measure.



4 [a] In the opposite figure :

$m(\angle B) = 90^\circ$   
 ,  $m(\angle ACB) = 30^\circ$   
 , E, F are the midpoints of  $\overline{DC}$ ,  $\overline{AD}$

Prove that :  $AB = EF$



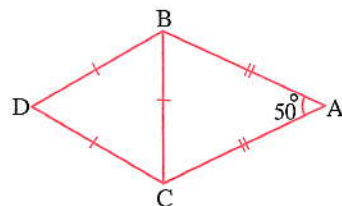


[b] In the opposite figure :

$$m(\angle A) = 50^\circ, AB = AC$$

and  $\triangle BDC$  is an equilateral triangle.

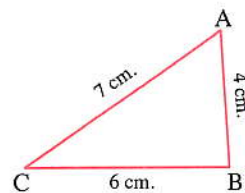
Find :  $m(\angle ABD)$



[c] Complete : In the right-angled triangle , the length of the side opposite to the angle of measure  $30^\circ$  equals .....

5 [a] In the opposite figure :

Arrange the angles of  $\triangle ABC$   
in an ascending order.



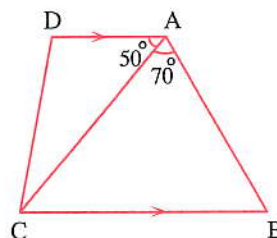
[b] In the opposite figure :

$$\overline{AD} \parallel \overline{BC}$$

$$, m(\angle CAB) = 70^\circ$$

$$, m(\angle DAC) = 50^\circ$$

Prove that :  $BC > AB$

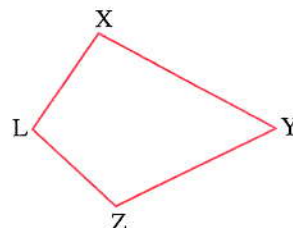


[c] In the opposite figure :

$$XY > XL \text{ and } YZ > LZ$$

Prove that :

$$m(\angle XLZ) > m(\angle XYZ)$$



5

Alexandria Governorate



Agami Educational Zone  
Mathematics Supervisor

Answer the following questions :

1 Choose the correct answer :

[1] In  $\triangle ABC$  , if  $m(\angle A) = 40^\circ$  ,  $m(\angle B) = 65^\circ$  , then the longest side in the triangle is .....

- (a)  $\overline{AB}$  (b)  $\overline{AC}$  (c)  $\overline{CB}$  (d)  $\overline{AD}$

[2] The measure of the exterior angle of an equilateral triangle equals .....

- (a)  $360^\circ$  (b)  $120^\circ$  (c)  $90^\circ$  (d)  $60^\circ$

[3] In  $\triangle ABC$  , if  $AB = 5$  cm. ,  $AC = 4$  cm. , then  $BC \in$  .....

- (a)  $]1, 9]$  (b)  $[1, 9[$  (c)  $]1, 9[$  (d)  $]4, 5[$



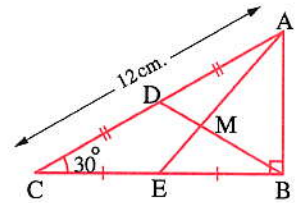
- 4 If  $\triangle ABC$  has three axes of symmetry and  $\overline{AD}$  is a median, then  $AC = \dots\dots\dots BD$   
 (a)  $\frac{1}{2}$  (b)  $\frac{1}{3}$  (c)  $\frac{1}{4}$  (d) 2
- 5 In  $\triangle ABC$ , if  $AB = AC$ ,  $m(\angle A) = 50^\circ$ , then  $m(\angle C) = \dots\dots\dots$   
 (a)  $130^\circ$  (b)  $50^\circ$  (c)  $75^\circ$  (d)  $65^\circ$
- 6 If  $A \in L$ , where  $L$  is the axis of symmetry of  $\overline{BC}$ , then  $AB \dots\dots\dots AC$   
 (a) = (b) < (c)  $\equiv$  (d) >

2 Complete the following :

- 1 The straight line perpendicular to a line segment from its midpoint is called  $\dots\dots\dots$
- 2 If  $m(\angle A) = 150^\circ$ , then  $m(\text{reflex } \angle A) = \dots\dots\dots^\circ$
- 3 If  $\overline{AB} \equiv \overline{CD}$  and  $AB = 9 \text{ cm.}$ , then  $AB - CD = \dots\dots\dots$
- 4 In  $\triangle DEF$ , if  $DE < EF < DF$ , then the greatest angle in measure is  $\dots\dots\dots$
- 5 If  $\overline{AD}$  is a median in  $\triangle ABC$  and  $M$  is the point of intersection of its medians,  $AM = 8 \text{ cm.}$ , then  $MD = \dots\dots\dots \text{ cm.}$
- 6 In the right-angled triangle, the length of the median from the vertex of the right angle equals  $\dots\dots\dots$  the length of the hypotenuse.

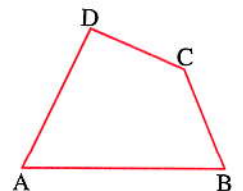
3 [a] In the opposite figure :

$ABC$  is a triangle in which  $m(\angle B) = 90^\circ$   
 $m(\angle C) = 30^\circ$ ,  $AC = 12 \text{ cm.}$   
 $\overline{AE}$  and  $\overline{BD}$  are two medians intersecting at  $M$   
**Find :** the length of each of  $\overline{BD}$ ,  $\overline{BM}$  and  $\overline{AB}$



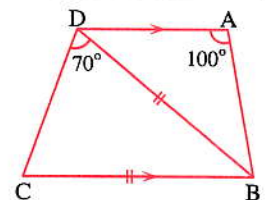
[b] In the opposite figure :

$ABCD$  is a quadrilateral in which  
 $\overline{AB}$  is the longest side,  $\overline{CD}$  is the shortest one.  
**Prove that :**  $m(\angle BCD) > m(\angle BAD)$



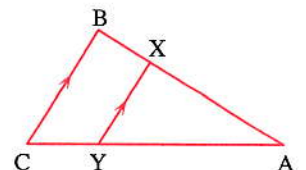
4 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$ ,  $m(\angle BAD) = 100^\circ$   
 $m(\angle BDC) = 70^\circ$ ,  $BD = BC$   
**Prove that :**  $\triangle ABD$  is an isosceles triangle.



[b] In the opposite figure :

$AB > BC$  and  $\overline{XY} \parallel \overline{BC}$   
**Prove that :**  $AX > XY$





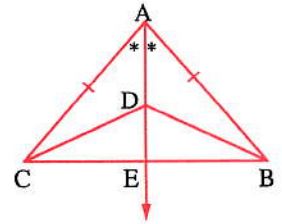
**5 [a] In the opposite figure :**

In  $\triangle ABC$  ,  $AB = AC$

,  $\overrightarrow{AE}$  bisects  $\angle BAC$

,  $\overrightarrow{AE} \cap \overrightarrow{BC} = \{E\}$  ,  $D \in \overrightarrow{AE}$

Prove that : **1**  $BE = \frac{1}{2} BC$       **2**  $BD = CD$

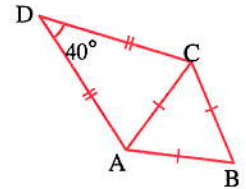


**[b] In the opposite figure :**

$m(\angle D) = 40^\circ$  ,  $DC = DA$

and  $ABC$  is an equilateral triangle.

Find :  $m(\angle DCB)$



**6**

El-Kalyoubia Governorate



Maths Supervision  
Official Language Schools

*Answer the following questions :*

**1 Choose the correct answer :**

**1**  $\triangle XYZ$  is an isosceles triangle in which  $m(\angle X) = 110^\circ$  , then  $m(\angle Y) = \dots\dots\dots$

- (a)  $110^\circ$       (b)  $35^\circ$       (c)  $60^\circ$       (d)  $45^\circ$

**2** In  $\triangle ABC$  , if  $\overline{AB} \perp \overline{BC}$  and  $AB = BC$  , then  $m(\angle A) = \dots\dots\dots$

- (a)  $30^\circ$       (b)  $45^\circ$       (c)  $60^\circ$       (d)  $90^\circ$

**3** In  $\triangle ABC$  , if  $AC = 4$  cm. ,  $BC = 3$  cm. , then  $m(\angle B) \dots\dots\dots m(\angle A)$

- (a)  $>$       (b)  $\leq$       (c)  $<$       (d)  $=$

**4** The triangle whose side lengths are 2 cm. ,  $(X + 3)$  cm. and 5 cm. becomes an isosceles triangle when  $X = \dots\dots\dots$

- (a) 1      (b) 2      (c) 3      (d) 4

**5** In  $\triangle ABC$  ,  $AB = AC$  ,  $m(\angle B) = X + 30^\circ$  ,  $m(\angle C) = 2X + 5^\circ$  , then  $X = \dots\dots\dots$

- (a)  $25^\circ$       (b)  $20^\circ$       (c)  $35^\circ$       (d)  $65^\circ$

**6** If  $\overline{AD}$  is a median of  $\triangle ABC$  , and  $M$  is the point of concurrence of the medians , then  $AD = \dots\dots\dots AM$

- (a)  $\frac{1}{3}$       (b)  $\frac{1}{2}$       (c)  $\frac{2}{3}$       (d)  $\frac{3}{2}$

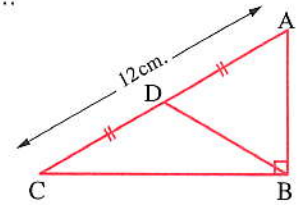
**2 Complete each of the following :**

**1** The number of axes of symmetry of the equilateral triangle equals  $\dots\dots\dots$

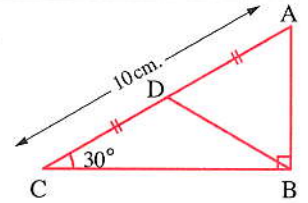
**2** The base angles of an isosceles triangle are  $\dots\dots\dots$



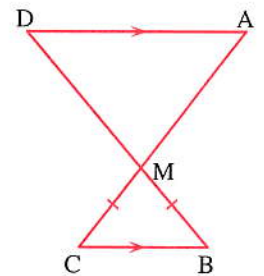
- 3 The longest side of the right-angled triangle is .....
- 4 The bisector of the vertex angle of the isosceles triangle .....
- 5 In the opposite figure :  
 $AC = 12$  cm.  
 , then  $BD =$  ..... cm.
- 6  $ABC$  is a triangle in which  $AB = 4$  cm. ,  $BC = 6$  cm. , then  $AC \in ]$  ..... , ..... [



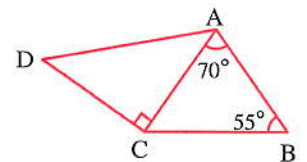
- 3 [a] In the opposite figure :  
 $m(\angle ABC) = 90^\circ$  ,  $m(\angle C) = 30^\circ$   
 ,  $AD = DC$  and  $AC = 10$  cm.  
**Find :** the perimeter of  $\triangle ABD$



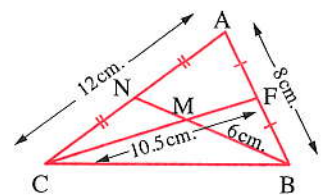
- [b] In the opposite figure :  
 $\overline{AC} \cap \overline{BD} = \{M\}$   
 ,  $\overline{AD} \parallel \overline{BC}$   
 and  $MB = MC$   
**Prove that :**  $\triangle MAD$  is isosceles.



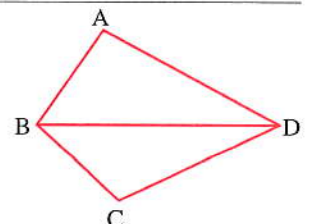
- 4 [a] In the opposite figure :  
 $m(\angle BAC) = 70^\circ$  ,  $m(\angle B) = 55^\circ$   
 and  $m(\angle ACD) = 90^\circ$   
**Prove that :**  $AD > AB$



- [b] In the opposite figure :  
 F and N are the midpoints of  $\overline{AB}$  and  $\overline{AC}$  respectively  
 ,  $\overline{BN} \cap \overline{CF} = \{M\}$  ,  $AB = 8$  cm. ,  $AC = 12$  cm.  
 ,  $BM = 6$  cm. ,  $CF = 10.5$  cm.  
**Find :** the perimeter of the figure AFMN



- 5 [a] In the opposite figure :  
 $AB < AD$   
 and  $BC < CD$   
**Prove that :**  $m(\angle ABC) > m(\angle ADC)$



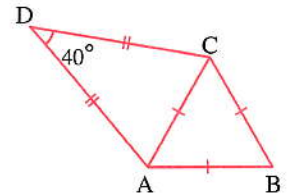


[b] In the opposite figure :

$$m(\angle D) = 40^\circ, DA = DC$$

and  $\triangle ABC$  is an equilateral triangle.

Find :  $m(\angle DCB)$



7

El-Monofia Governorate



Sirs El-Laian Educational Administration  
Mathematics Directorate

Answer the following questions : (Calculator is allowed)

1 Choose the correct answer from those given :

- 1 The lengths 6 cm. , 7 cm. and ..... can be the lengths of the sides of a triangle.  
(a) 1 cm. (b) 13 cm. (c) 11 cm. (d) 20 cm.
- 2 If ABC is an equilateral triangle , then  $m(\angle B) = \dots\dots\dots$   
(a)  $30^\circ$  (b)  $45^\circ$  (c)  $60^\circ$  (d)  $90^\circ$
- 3 In  $\triangle ABC$  , if  $m(\angle A) = 30^\circ$  and  $m(\angle B) = 90^\circ$  , then  $AC = \dots\dots\dots$   
(a) 2 CB (b) 2 AB (c) BC (d)  $\frac{1}{2} BC$
- 4 Any triangle has ..... medians.  
(a) zero (b) 1 (c) 2 (d) 3
- 5 The sum of lengths of any two sides of a triangle ..... the length of the third side.  
(a) = (b)  $\equiv$  (c) < (d) >
- 6 The point of intersection of the medians of the triangle divides each of them with the ratio ..... from the vertex.  
(a) 1 : 2 (b) 2 : 1 (c) 1 : 3 (d) 3 : 1

2 Complete the following :

- 1 The number of axes of symmetry of the equilateral triangle equals .....
- 2 In  $\triangle ABC$  , if  $m(\angle B) = 70^\circ$  ,  $m(\angle C) = 50^\circ$  , then  $AC \dots\dots\dots AB$
- 3 If  $m(\angle A) = 100^\circ$  , then  $m(\text{reflex } \angle A) = \dots\dots\dots^\circ$
- 4  $\triangle ABC$  is right-angled at B ,  $m(\angle A) = 30^\circ$  ,  $AC = 10$  cm. , then  $CB = \dots\dots\dots$  cm.
- 5 The base angles of the isosceles triangle are .....
- 6 The longest side in the right-angled triangle is .....



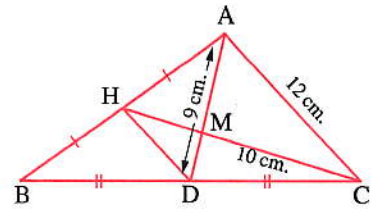
**3 [a] In the opposite figure :**

D is the midpoint of  $\overline{BC}$ , H is the midpoint of  $\overline{AB}$

,  $\overline{AD} \cap \overline{CH} = \{M\}$ ,  $AD = 9$  cm.

,  $AC = 12$  cm.,  $CM = 10$  cm.

**Find :** the perimeter of  $\triangle MDH$



- [b]** ABC is a triangle in which :  $m(\angle A) = (5x + 2)^\circ$ ,  $m(\angle B) = (6x - 10)^\circ$   
 $m(\angle C) = (x + 20)^\circ$  Arrange the lengths of the sides of the triangle in an ascending order.

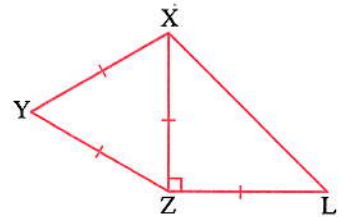
**4 [a] In the opposite figure :**

XYZL is a quadrilateral in which :

$ZY = ZL = ZX = YX$

,  $m(\angle XZL) = 90^\circ$

**Find :**  $m(\angle XLZ)$ ,  $m(\angle LXY)$



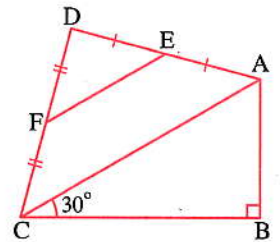
**[b] In the opposite figure :**

$m(\angle B) = 90^\circ$ ,  $m(\angle ACB) = 30^\circ$

, E is the midpoint of  $\overline{AD}$

, F is the midpoint of  $\overline{CD}$

**Prove that :**  $AB = EF$



**5 [a] In the opposite figure :**

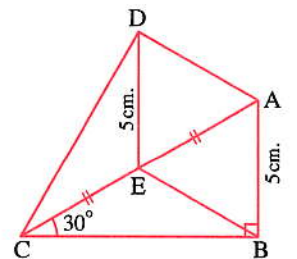
ABC is a right-angled triangle at B

,  $m(\angle ACB) = 30^\circ$ ,  $AB = 5$  cm.

, E is the midpoint of  $\overline{AC}$

If  $DE = 5$  cm.

**Prove that :**  $m(\angle ADC) = 90^\circ$



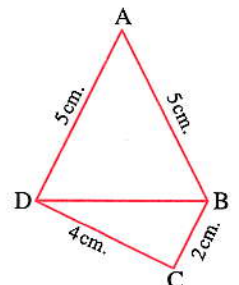
**[b] In the opposite figure :**

ABCD is a quadrilateral in which :

$AB = AD = 5$  cm.

,  $BC = 2$  cm.,  $DC = 4$  cm.

**Prove that :**  $m(\angle ABC) > m(\angle ADC)$







Answer the following questions :

1 Choose the correct answer :

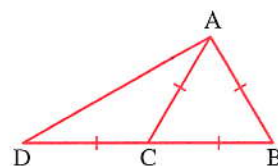
- 1 In  $\triangle ABC$  ,  $m(\angle C) = 65^\circ$  ,  $m(\angle A) = 75^\circ$  , then .....  
 (a)  $AB > BC$       (b)  $AB < AC$       (c)  $BC > AB$       (d)  $AB = AC$
- 2 The measure of the exterior angle of the equilateral triangle equals .....  
 (a)  $180^\circ$       (b)  $60^\circ$       (c)  $360^\circ$       (d)  $120^\circ$
- 3 The numbers 5 , 4 , ..... can be lengths of sides of a triangle.  
 (a) 8      (b) 9      (c) 10      (d) 12
- 4 If M is the point of intersection of the medians of  $\triangle ABC$  and D is the midpoint of  $\overline{BC}$  , then  $AD =$  .....  
 (a) 2 AM      (b) 3 MD      (c)  $\frac{2}{3}$  MD      (d) AM
- 5 In  $\triangle ABC$  , if  $AB = AC$  ,  $m(\angle B) = 6X$  ,  $m(\angle A) = 3X$  , then  $X =$  .....  
 (a)  $12^\circ$       (b)  $30^\circ$       (c)  $60^\circ$       (d)  $90^\circ$
- 6 If the lengths of two sides in an isosceles triangle are 8 cm. and 4 cm. , then the perimeter of the triangle equals ..... cm.  
 (a) 16      (b) 32      (c) 20      (d) 12

2 Complete the following :

- 1 The median of the isosceles triangle from the vertex angle ..... , .....
- 2 The number of axes of symmetry of an isosceles triangle is .....
- 3 If ABC is a right-angled triangle at B ,  $AB = BC$  , then  $m(\angle C) = \dots\dots\dots^\circ$
- 4 The number of medians in the right-angled triangle is .....
- 5 If  $m(\angle A) = 80^\circ$  , then  $m(\text{reflex } \angle A) = \dots\dots\dots^\circ$
- 6 If  $\triangle ABD$  is obtuse-angled at B , then the longest side is .....

3 [a] In the opposite figure :

ABC is an equilateral triangle  
 ,  $D \in \overline{BC}$  such that :  $BC = CD$   
 Prove that :  $\overline{BA} \perp \overline{AD}$

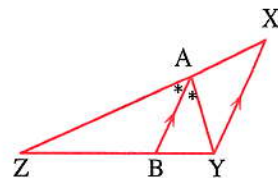




**[b] In the opposite figure :**

$\overline{AB} \parallel \overline{XY}$  and  $\overline{AB}$  bisects  $\angle YAZ$

**Prove that :**  $XZ > YZ$



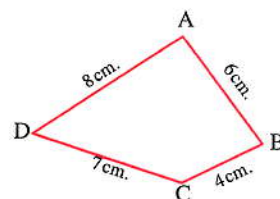
**4 [a] In the opposite figure :**

ABCD is a quadrilateral in which

$AB = 6 \text{ cm.}$  ,  $BC = 4 \text{ cm.}$

$CD = 7 \text{ cm.}$  ,  $DA = 8 \text{ cm.}$

**Prove that :**  $m(\angle BCD) > m(\angle BAD)$



**[b] In the opposite figure :**

X, Y are the midpoints of  $\overline{AB}$ ,  $\overline{AC}$  respectively

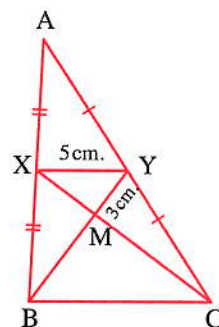
$\overline{CX} \cap \overline{BY} = \{M\}$

$XY = 5 \text{ cm.}$

$CX = 12 \text{ cm.}$

$MY = 3 \text{ cm.}$

**Find with proof :** the perimeter of  $\triangle MBC$



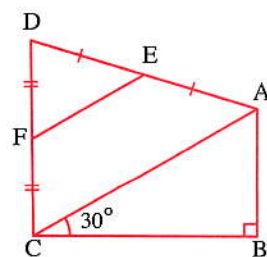
**5 [a] In the opposite figure :**

$m(\angle B) = 90^\circ$  ,  $m(\angle ACB) = 30^\circ$

E is the midpoint of  $\overline{AD}$

F is the midpoint of  $\overline{CD}$

**Prove that :**  $AB = EF$



**[b] In the opposite figure :**

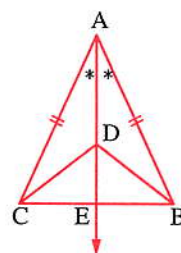
ABC is a triangle in which :  $AB = AC$

$\overline{AE}$  bisects  $\angle BAC$

$\overline{AE} \cap \overline{BC} = \{E\}$  ,  $D \in \overline{AE}$

**Prove that :** ①  $BE = \frac{1}{2} BC$

②  $BD = CD$







**Answer the following questions :**

**1 Choose the correct answer :**

- 1** In the right-angled triangle , the ratio between the length of the hypotenuse and the length of the side opposite to the angle of measure  $30^\circ$  equals .....  
 (a) 1 : 2                      (b) 2 : 1                      (c) 1 : 1                      (d) 1 : 3
- 2** The measure of the exterior angle of the equilateral triangle is .....  
 (a)  $30^\circ$                       (b)  $60^\circ$                       (c)  $90^\circ$                       (d)  $120^\circ$
- 3** The two diagonals are equal in length and not perpendicular in the .....  
 (a) square.                      (b) rhombus.                      (c) rectangle.                      (d) parallelogram.
- 4** In  $\triangle ABC$  , if  $AB < AC$  , then  $m(\angle C)$  .....  $m(\angle B)$   
 (a)  $>$                       (b)  $<$                       (c)  $=$                       (d)  $\geq$
- 5** The two base angles of the isosceles triangle are .....  
 (a) supplementary.                      (b) congruent.                      (c) straight.                      (d) obtuse.
- 6** The point of intersection of the medians of the triangle divides each one by the ratio of ..... from the vertex.  
 (a) 1 : 2                      (b) 2 : 3                      (c) 2 : 1                      (d) 1 : 3
- 7**  $\triangle ABC$  is right-angled at A ,  $AB = AC$  , then  $m(\angle B) =$  .....  
 (a)  $30^\circ$                       (b)  $45^\circ$                       (c)  $60^\circ$                       (d)  $90^\circ$
- 8**  $\triangle ABC$  is an isosceles triangle in which 4 cm. , 8 cm. are the lengths of two sides , then the length of the third side equals ..... cm.  
 (a) 4                      (b) 2                      (c) 8                      (d) 12
- 9** If  $\angle A$  ,  $\angle B$  are two supplementary angles and  $\angle B \equiv \angle A$  , then  $m(\angle A) =$  .....  
 (a)  $45^\circ$                       (b)  $60^\circ$                       (c)  $90^\circ$                       (d)  $180^\circ$
- 10** Which of the following numbers can be side lengths of a triangle ?  
 (a) 5 , 3 , 2                      (b) 6 , 3 , 2                      (c) 6 , 3 , 3                      (d) 3 , 3 , 3
- 11** ABC is a triangle , which  $m(\angle A) = 40^\circ$  ,  $m(\angle C) = 100^\circ$  , then it has ..... of symmetry axes.  
 (a) one                      (b) two                      (c) three                      (d) infinite number

- 12 If M is the point of intersection of the medians of  $\triangle ABC$  and  $\overline{AD}$  is a median of it ,  $AD = 6$  cm. , then  $AM = \dots\dots\dots$  cm.  
 (a) 1 (b) 2 (c) 3 (d) 4
- 13 XYZ is a triangle in which  $m(\angle X) = 110^\circ$  ,  $m(\angle Y) = 40^\circ$  , then  $XY \dots\dots\dots YZ$   
 (a)  $>$  (b)  $<$  (c)  $=$  (d)  $//$
- 14 If  $\triangle ABC \equiv \triangle XYZ$  , then  $AB = \dots\dots\dots$   
 (a) XZ (b) XY (c) YZ (d) BC
- 15 ABC is a triangle in which  $m(\angle B) = 90^\circ$  , then  $\dots\dots\dots$   
 (a)  $AC > CB$  (b)  $AB > AC$  (c)  $BC > AD$  (d)  $AB = AC$
- 16  $\triangle ABC$  is a right-angled triangle at B ,  $\overline{BD}$  is a median of length 3 cm. , then  $AC = \dots\dots\dots$  cm.  
 (a) 9 (b) 6 (c) 1.5 (d) 12
- 17 ABC is a triangle in which  $AB = AC$  ,  $m(\angle B) = 50^\circ$  , then  $m(\angle A) = \dots\dots\dots$   
 (a)  $50^\circ$  (b)  $110^\circ$  (c)  $40^\circ$  (d)  $80^\circ$
- 18 In  $\triangle ABC$  , if  $m(\angle A) = 100^\circ$  , then the longest side is  $\dots\dots\dots$   
 (a)  $\overline{AB}$  (b)  $\overline{AC}$  (c)  $\overline{BC}$  (d) the median.
- 19 The sum of the lengths of any two sides of a triangle is  $\dots\dots\dots$  the length of the third side.  
 (a) less than (b) more than (c) equal to (d) half
- 20 If  $\overleftrightarrow{AD}$  is the symmetry axis of  $\overline{BC}$  , then  $\overline{AB} \dots\dots\dots \overline{AC}$   
 (a)  $\equiv$  (b)  $=$  (c)  $//$  (d)  $\perp$
- 21 ABC is a triangle in which  $AB = AC$  ,  $m(\angle A) = 60^\circ$  and the perimeter of this triangle equals 18 cm. , then  $BC = \dots\dots\dots$  cm.  
 (a) 10 (b) 12 (c) 6 (d) 8

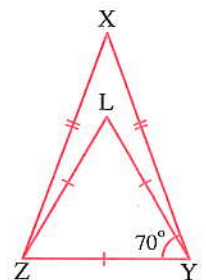
## 2 In the opposite figure :

$\triangle LYZ$  is an equilateral triangle

,  $XY = XZ$

,  $m(\angle XYZ) = 70^\circ$

Find :  $m(\angle XZL)$  , write the proof.

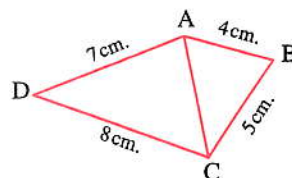




**3 In the opposite figure :**

ABCD is a quadrilateral  
 ,  $AB = 4 \text{ cm.}$  ,  $BC = 5 \text{ cm.}$   
 ,  $CD = 8 \text{ cm.}$  ,  $AD = 7 \text{ cm.}$

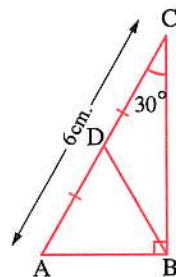
**Show that :**  $m(\angle BAD) > m(\angle BCD)$



**4 In the opposite figure :**

$m(\angle ABC) = 90^\circ$   
 , D is the midpoint of  $\overline{AC}$   
 ,  $m(\angle C) = 30^\circ$   
 ,  $AC = 6 \text{ cm.}$

**Find :** the perimeter of  $\triangle ABD$



**10**

**Kafr El-Sheikh Governorate**



**Baltim Educational Directorate  
Math Supervision**

*Answer the following questions :*

**1 Choose the correct answer :**

**1** ABC is a triangle in which  $AB = AC$  ,  $m(\angle B) = 70^\circ$  , then  $m(\angle A) = \dots\dots\dots$

- (a)  $40^\circ$                       (b)  $50^\circ$                       (c)  $55^\circ$                       (d)  $70^\circ$

**2** ABC is a triangle in which  $m(\angle A) = 40^\circ$  ,  $m(\angle B) = 50^\circ$  , then  $\dots\dots\dots$

- (a)  $AB > AC$                       (b)  $AB < AC$                       (c)  $AB = AC$                       (d)  $\overline{AB} \perp \overline{AC}$

**3** If the measure of one angle of a right-angled triangle is  $45^\circ$  , then the number of its axes of symmetry equals  $\dots\dots\dots$

- (a) 0                      (b) 1                      (c) 2                      (d) 3

**4** ABC is a triangle in which  $AB = 4 \text{ cm.}$  ,  $BC = 6 \text{ cm.}$  , then the length of the third side may be equal to  $\dots\dots\dots \text{ cm.}$

- (a) 1                      (b) 2                      (c) 3                      (d) 10

**5** If M is the intersection point of the medians of  $\triangle ABC$  , D is the midpoint of  $\overline{BC}$  , then  $AD = \dots\dots\dots$

- (a)  $2 \text{ AM}$                       (b)  $\frac{2}{3} \text{ MD}$                       (c)  $\frac{3}{2} \text{ AM}$                       (d)  $4 \text{ MD}$

**6** A square with side length  $10 \text{ cm.}$  , then its area =  $\dots\dots\dots \text{ cm}^2$

- (a) 100                      (b) 20                      (c) 40                      (d) 25

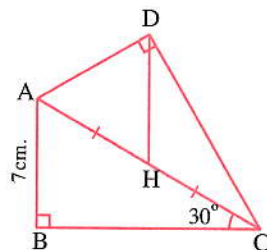
**2 Complete :**

- 1** A rectangle with dimensions 10 cm. , 5 cm. , then its perimeter = ..... cm.
- 2** If two angles of a triangle are congruent , then the two sides opposite to these angles are ..... and the triangle is .....
- 3** The bisector of the vertex of an isosceles triangle ..... and .....
- 4** The length of the hypotenuse in the thirty sixty triangle equals ..... the length of the side opposite to the angle of measure  $30^\circ$
- 5** In a triangle , if two sides have unequal lengths , then the longer is opposite to .....
- 6** ABC is a triangle in which  $m(\angle A) = 100^\circ$  , then the greatest side is .....

**3 [a] In the opposite figure :**

ABC is a right-angled triangle at B  
 $m(\angle ACB) = 30^\circ$  ,  $m(\angle ADC) = 90^\circ$   
 , H is the midpoint of  $\overline{AC}$  ,  $AB = 7$  cm.

**Find :** the length of each of  $\overline{AC}$  and  $\overline{DH}$

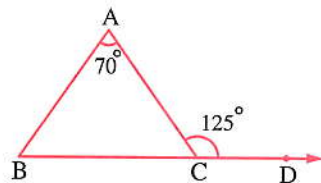


- [b]** In the triangle ABC , if  $m(\angle A) = 40^\circ$  ,  $m(\angle B) = 75^\circ$  , arrange the lengths of sides of  $\triangle ABC$  descendingly.

**4 [a] In the opposite figure :**

$D \in \overrightarrow{BC}$  ,  $m(\angle A) = 70^\circ$   
 $m(\angle ACD) = 125^\circ$

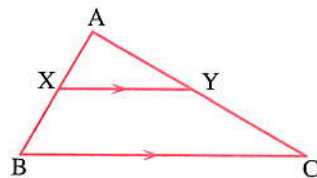
**Prove that :**  $\triangle ABC$  is an isosceles triangle.



**[b] In the opposite figure :**

ABC is a triangle in which  $AB < AC$   
 $\overline{XY} \parallel \overline{BC}$

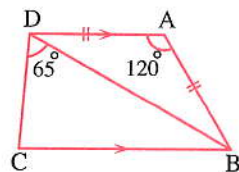
**Prove that :**  $m(\angle AYX) < m(\angle AXY)$



**5 [a] In the opposite figure :**

$AB = AD$  ,  $m(\angle BAD) = 120^\circ$   
 $\overline{AD} \parallel \overline{BC}$  ,  $m(\angle BDC) = 65^\circ$

**Find :**  $m(\angle C)$



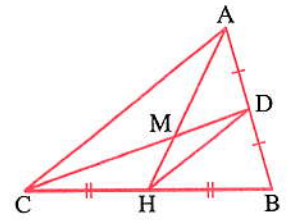


**[b] In the opposite figure :**

ABC is a triangle in which  $\overline{CD}$   
 ,  $\overline{AH}$  are two medians ,  $\overline{AH} \cap \overline{CD} = \{M\}$

,  $AH = 15$  cm. ,  $MC = 14$  cm.

**Find :** the length of each of  $\overline{AM}$  ,  $\overline{MD}$



**11**

**El-Fayoum Governorate**



**Directorate of Education**

**Answer the following questions : (Calculator is allowed)**

**1 Choose the correct answer from the given ones :**

**[1]** The diagonal length of the square whose area is  $25 \text{ cm}^2$  is ..... cm.

- (a)  $5\sqrt{2}$  (b)  $5\sqrt{3}$  (c) 5 (d) 10

**[2]** If 6 cm. , 3 cm. and  $X$  cm. are the side lengths of an isosceles triangle  
 , then  $X =$  .....

- (a) 3 (b) 6 (c) 9 (d) 5

**[3]** The triangle which has three axes of symmetry is .....

- (a) scalene. (b) isosceles. (c) equilateral. (d) right-angled.

**[4]** If  $\overline{AD}$  is a median of  $\triangle ABC$  ,  $M$  is the point of concurrence of the medians  
 ,  $MD = 4$  cm. , then  $AM =$  ..... cm.

- (a) 2 (b) 4 (c) 6 (d) 8

**[5]** In  $\triangle ABC$  , if  $AB = AC$  , then the exterior angle at the vertex  $C$  is .....

- (a) acute. (b) obtuse. (c) right. (d) reflex.

**[6]** If two vertically opposite angles are supplementary , then the measure of each angle  
 equals .....

- (a)  $60^\circ$  (b)  $90^\circ$  (c)  $180^\circ$  (d)  $45^\circ$

**2 Complete the following :**

**[1]** In  $\triangle ABC$  , if  $m(\angle B) = 111^\circ$  , then the longest side is .....

**[2]** In any triangle , if the lengths of two sides are not equal , then the greater side in  
 length is opposite to .....

**[3]** In  $\triangle LMN$  , if  $LM = LN$  ,  $m(\angle L) = 100^\circ$  , then  $m(\angle M) =$  .....  $^\circ$

**[4]** In  $\triangle XYZ$  , if  $m(\angle Z) = 30^\circ$  ,  $m(\angle Y) = 90^\circ$  ,  $XZ = 10$  cm.  
 , then  $XY =$  ..... cm.

- 5 If two straight lines are parallel to a third straight line, then these two straight lines are .....
- 6 The number of the medians of the obtuse-angled triangle is .....

3 [a] In the opposite figure :

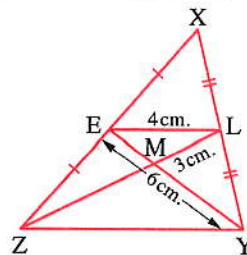
XYZ is a triangle, L is the midpoint of  $\overline{XY}$

, E is the midpoint of  $\overline{XZ}$

,  $\overline{EY} \cap \overline{LZ} = \{M\}$ ,  $LE = 4$  cm.

,  $LM = 3$  cm.,  $YE = 6$  cm.

Find : the perimeter of the triangle YMZ

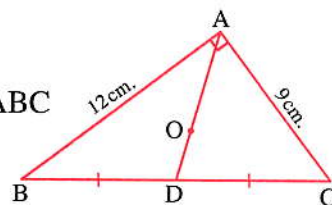


[b] In the opposite figure :

O is the point of concurrence of the medians of the triangle ABC

,  $m(\angle BAC) = 90^\circ$ ,  $AB = 12$  cm.,  $AC = 9$  cm.

Find : the length of  $\overline{AO}$



4 [a] In the opposite figure :

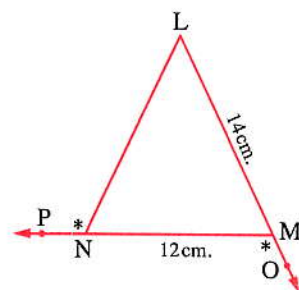
$O \in \overline{LM}$ ,  $P \in \overline{MN}$

,  $m(\angle OMN) = m(\angle PNL)$

,  $LM = 14$  cm.

,  $MN = 12$  cm.

Find with proof : the perimeter of  $\triangle LMN$



[b] In the opposite figure :

ABCD is a quadrilateral,  $\overline{AD} \parallel \overline{BC}$

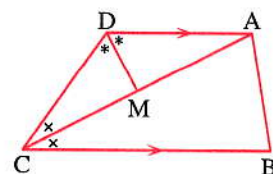
,  $m(\angle ACB) = m(\angle ACD)$

,  $m(\angle ADM) = m(\angle CDM)$

Prove that : 1  $DA = DC$

2  $\overline{DM} \perp \overline{AC}$

3  $AM = MC$

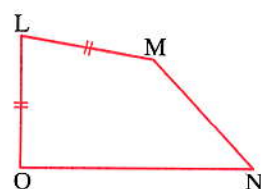


5 [a] In the opposite figure :

LMNO is a quadrilateral

,  $LM = LO$ ,  $NO > NM$

Prove that :  $m(\angle M) > m(\angle O)$





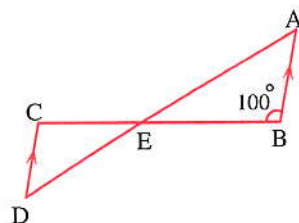
**[b] In the opposite figure :**

$\overline{AB} \parallel \overline{CD}$  ,  $m(\angle B) = 100^\circ$

,  $\overline{AD} \cap \overline{BC} = \{E\}$

**1 Find :**  $m(\angle C)$

**2 Prove that :**  $AD > BC$



**12**

**Qena Governorate**



**Qena Directorate of Education  
Math Supervision**

*Answer the following questions :*

**1 Choose the correct answer :**

**1** The numbers 7 , 4 , ..... can be lengths of sides of a triangle.

- (a) 2                      (b) 3                      (c) 9                      (d) 12

**2** If  $\triangle XYZ$  is a right-angled triangle at Y , then  $YX$  .....  $XZ$

- (a) <                      (b) >                      (c)  $\equiv$                       (d) =

**3** The triangle in which the measures of two angles of it are  $52^\circ$  and  $76^\circ$  is ..... triangle.

- (a) an isosceles                      (b) an equilateral                      (c) a scalene                      (d) a right-angled

**4** The point of concurrence of the medians of the triangle divides each median in the ratio of ..... from its vertex.

- (a) 1 : 2                      (b) 2 : 3                      (c) 3 : 4                      (d) 6 : 3

**5**  $\triangle XYZ$  is an isosceles triangle in which :  $m(\angle X) = 110^\circ$  , then  $m(\angle Y) =$  .....

- (a)  $110^\circ$                       (b)  $70^\circ$                       (c)  $60^\circ$                       (d)  $35^\circ$

**6** The measure of the interior angle of the equilateral triangle equals .....

- (a)  $60^\circ$                       (b)  $90^\circ$                       (c)  $120^\circ$                       (d)  $180^\circ$

**2 Complete each of the following :**

**1** The longest side in the right-angled triangle is .....

**2** If  $\overline{AB} \equiv \overline{XB}$  , then  $\frac{AB}{XB} =$  .....

**3** If  $x < y$  and  $b < a$  , then  $y + a >$  .....

**4** The medians of the triangle intersect at ..... point.

**5** The number of axes of symmetry of the scalene triangle equals .....

**6** The bisector of the vertex angle of an isosceles triangle ..... and .....

- 3 [a] In  $\triangle ABC$ , if  $m(\angle B) = 40^\circ$ ,  $m(\angle C) = 80^\circ$ , arrange its side lengths ascendingly.

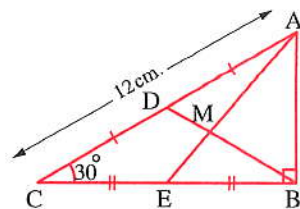
[b] In the opposite figure :

$\triangle ABC$  is right-angled at B

,  $m(\angle C) = 30^\circ$ , D is the midpoint of  $\overline{AC}$

, E is the midpoint of  $\overline{BC}$ ,  $\overline{AE} \cap \overline{BD} = \{M\}$ ,  $AC = 12$  cm.

Find : the length of each of  $\overline{BD}$ ,  $\overline{BM}$  and  $\overline{AB}$



- 4 [a] In the opposite figure :

$m(\angle XYZ) = m(\angle YME) = 90^\circ$

,  $m(\angle EYM) = 60^\circ$

, M is the midpoint of  $\overline{XZ}$

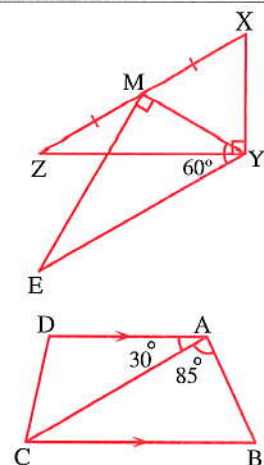
Prove that :  $ZX = EY$

[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$ ,  $m(\angle BAC) = 85^\circ$

,  $m(\angle DAC) = 30^\circ$

Prove that :  $AC > BA$



- 5 [a] In the opposite figure :

$m(\angle B) = 90^\circ$ ,  $m(\angle BAC) = 60^\circ$

, E is the midpoint of  $\overline{AD}$

, F is the midpoint of  $\overline{CD}$

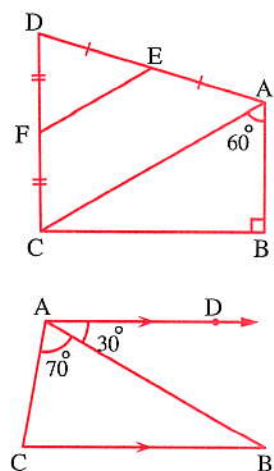
Prove that :  $AB = EF$

[b] In the opposite figure :

ABC is a triangle in which :  $\overline{AD} \parallel \overline{CB}$

,  $m(\angle DAB) = 30^\circ$ ,  $m(\angle BAC) = 70^\circ$

Prove that :  $AC < BC$



For more  
examinations  
on  
**Geometry**



Scan the code  
to download some more exams



حمل الآن

مجاناً وحصرياً

# امتحانات رقم (3)

## الترم الاول





Answer the following questions :

### 1 Choose the correct answer :

#### 1 In the opposite figure :

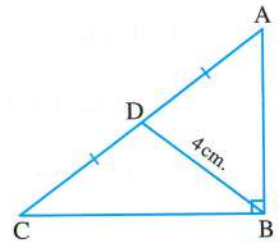
AC = ..... cm.

(a) 4

(b) 6

(c) 8

(d) 2



#### 2 If $\Delta ABC$ is right-angled at A and $AB = AC$ , then $m(\angle B) = \dots\dots\dots$

(a)  $30^\circ$

(b)  $45^\circ$

(c)  $60^\circ$

(d)  $90^\circ$

#### 3 In $\Delta ABC$ , if $AB = 6$ cm. , $AC = 7$ cm. , then $BC \in \dots\dots\dots$

(a)  $]6, 13]$

(b)  $[6, 7]$

(c)  $]1, 13[$

(d)  $[1, 7[$

#### 4 In $\Delta XYZ$ , if $XY < XZ$ , then .....

(a)  $m(\angle Y) \leq m(\angle Z)$

(b)  $m(\angle Y) > m(\angle Z)$

(c)  $m(\angle Y) = m(\angle Z)$

(d)  $m(\angle Z) > m(\angle Y)$

#### 5 If $\Delta ABC$ is right-angled at B , $m(\angle A) = 55^\circ$ , then the number of axes of symmetry of $\Delta ABC$ equals .....

(a) 1

(b) 2

(c) 3

(d) zero

#### 6 The triangle in which the measures of two angles of it are $42^\circ$ and $69^\circ$ is ..... triangle.

(a) an isosceles

(b) an equilateral

(c) a scalene

(d) a right-angled

### 2 Complete the following :

1 Any point on the axis of symmetry of a line segment is ..... from its terminals.

2 The longest side in the right-angled triangle is .....

3 The point of intersection of the medians of the triangle divides each of them by the ratio ..... ; ..... from the vertex.

4 The measure of any exterior angle of an equilateral triangle equals ..... $^\circ$

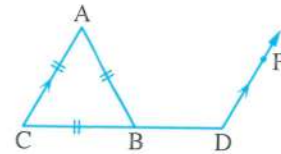
5 The sum of the lengths of any two sides in a triangle is ..... the length of the third side.



**3 [a] In the opposite figure :**

$\triangle ABC$  is an equilateral triangle ,  $\overrightarrow{DF} \parallel \overrightarrow{AC}$

**Find by proof :**  $m(\angle D)$

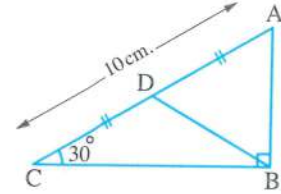


**[b] In the opposite figure :**

$m(\angle ABC) = 90^\circ$  ,  $m(\angle C) = 30^\circ$

,  $AC = 10$  cm. ,  $AD = DC$

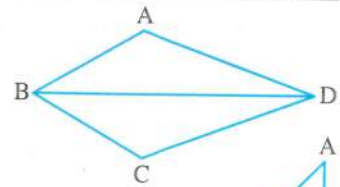
**Find :** The perimeter of  $\triangle ABD$



**4 [a] In the opposite figure :**

$AB < AD$  ,  $BC < CD$

**Prove that :**  $m(\angle ABC) > m(\angle ADC)$

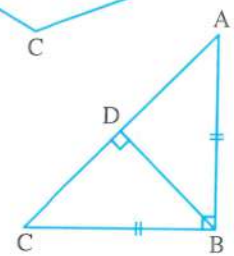


**[b] In the opposite figure :**

$m(\angle ABC) = 90^\circ$  ,  $\overline{BD} \perp \overline{AC}$

,  $AB = BC$

**Prove that :**  $\triangle DCB$  is an isosceles triangle.



- 5 [a]** XYZ is a triangle in which  $m(\angle X) = 60^\circ$  ,  $m(\angle Y) = 50^\circ$   
Order the lengths of the sides of the triangle descendingly.

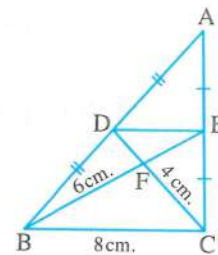
**[b] In the opposite figure :**

ABC is a triangle in which D , E are the midpoints of  $\overline{AB}$  ,  $\overline{AC}$

,  $FC = 4$  cm. ,  $FB = 6$  cm.

,  $BC = 8$  cm.

**Find :** The perimeter of  $\triangle DFE$



**2**

**Cairo Governorate**



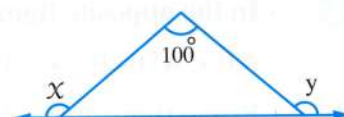
Hadayeq El-Koba Zone  
Al Nokrashy Governmental Lang. School

**Answer the following questions :**

**1 Choose the correct answer from those given :**

- 1** A triangle has one line of symmetry , the lengths of two sides are 4 cm. and 8 cm.  
then the length of the third side is ..... cm.  
(a) 3 (b) 4 (c) 8 (d) 6
- 2** The point of intersection of the medians of the triangle divides each median in the ratio of ..... from the base.  
(a) 2 : 1 (b) 2 : 3 (c) 1 : 2 (d) 1 : 3

- 3 If  $m(\angle A) = 50^\circ$ , then the measure of its reflex angle is .....  
 (a)  $40^\circ$  (b)  $130^\circ$  (c)  $310^\circ$  (d)  $180^\circ$
- 4 If the length of the side of an equilateral triangle is 10 cm., then the length of its height is ..... cm.  
 (a) 10 (b) 5 (c)  $5\sqrt{3}$  (d) 6
- 5 In  $\triangle ABC$ , if  $AB = 6$  cm.,  $AC = 7$  cm., then the length of  $\overline{BC} \in$  .....  
 (a)  $[6, 7]$  (b)  $]1, 7[$  (c)  $[1, 13]$  (d)  $]1, 13[$
- 6 In the opposite figure :  
 $x + y =$  .....  
 (a)  $180^\circ$  (b)  $360^\circ$   
 (c)  $240^\circ$  (d)  $280^\circ$



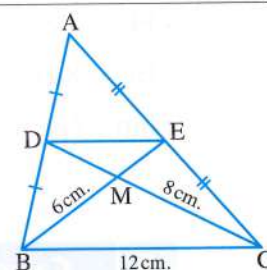
2 Complete :

- 1 If the measures of two angles in a triangle are different, then the greater angle in measure of them is .....
- 2 In the triangle ABC, if  $m(\angle A) = 50^\circ$ ,  $m(\angle B) = 60^\circ$ , then the longest side is .....
- 3 The median drawn from the vertex angle of an isosceles triangle ..... and .....
- 4 In  $\triangle ABC$ , if  $m(\angle A) = 30^\circ$ ,  $m(\angle B) = 90^\circ$ , then  $AC =$  .....  $BC$
- 5 The perpendicular bisector of a line segment is called .....

3 [a] In the opposite figure :

In  $\triangle ABC$  :  $\overline{BE}$ ,  $\overline{CD}$  are two medians,  $MB = 6$  cm.,  
 $BC = 12$  cm.,  $MC = 8$  cm.

Find : The perimeter of  $\triangle MDE$



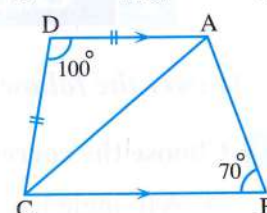
[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$ ,  $AD = DC$

$m(\angle D) = 100^\circ$ ,  $m(\angle B) = 70^\circ$

Prove that : 1  $AC > AB$

2  $\triangle ABC$  is isosceles.



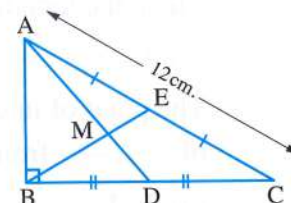
4 [a] In the opposite figure :

$\triangle ABC$  is right-angled at B

E and D are the midpoints of  $\overline{AC}$ ,  $\overline{BC}$  respectively

$AC = 12$  cm.

Find : The length of each of  $\overline{BE}$ ,  $\overline{ME}$

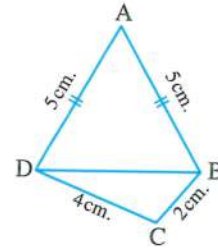




[b] In the opposite figure :

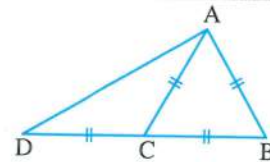
ABCD is a quadrilateral  
 $AB = AD = 5 \text{ cm.}$   
 $BC = 2 \text{ cm.}, DC = 4 \text{ cm.}$

Prove that :  $m(\angle ABC) > m(\angle ADC)$



5 [a] In the opposite figure :

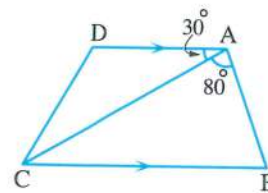
$AB = BC = AC = CD$   
 Prove that :  $m(\angle BAD) = 90^\circ$



[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$  ,  $m(\angle BAC) = 80^\circ$   
 $m(\angle DAC) = 30^\circ$

Prove that :  $BC > AB$



3

Cairo Governorate



New Cairo Educational Zone  
 Dr. Nermien Ismail Schools

Answer the following questions :

1 Choose the correct answer :

1 In  $\triangle ABC$  , if  $AB = AC$  ,  $m(\angle B) = 40^\circ$  , then  $m(\angle A) = \dots\dots\dots$

- (a)  $70^\circ$  (b)  $55^\circ$  (c)  $100^\circ$  (d)  $40^\circ$

2 The point of concurrence of the medians of the triangle divides each median at the ratio  $\dots\dots\dots$  from the vertex.

- (a)  $1 : 2$  (b)  $2 : 1$  (c)  $2 : 3$  (d)  $1 : 3$

3 In  $\triangle ABC$  , if  $AB = 7 \text{ cm.}$  ,  $BC = 10 \text{ cm.}$  , then the length of  $\overline{AC}$  must satisfy which of the following inequalities ?

- (a)  $3 \leq AC \leq 17$  (b)  $3 < AC < 17$  (c)  $10 < AC < 20$  (d)  $14 < AC < 20$

4 If  $\triangle ABD$  is obtuse-angled at B and C is the midpoint of  $\overline{BD}$  , then the longest side in  $\triangle ABD$  is  $\dots\dots\dots$

- (a)  $\overline{AB}$  (b)  $\overline{AC}$  (c)  $\overline{AD}$  (d)  $\overline{BD}$

5 In  $\triangle ABC$  , if  $m(\angle A) = 64^\circ$  ,  $m(\angle B) = 35^\circ$  , then the longest side of the triangle is  $\dots\dots\dots$

- (a)  $\overline{AB}$  (b)  $\overline{AC}$  (c)  $\overline{BC}$  (d) otherwise.

- 6 ABCD is a rectangle, M is the point of intersection of its diagonals, if the length of the diagonal is 6 cm., then the length of the median  $\overline{AM}$  is ..... cm.

(a) 3 (b) 6 (c) 9 (d) 12

2 Complete each of the following :

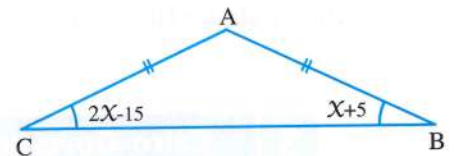
- 1 The length of the side which is opposite to the angle of measure  $30^\circ$  in the right-angled triangle equals ..... the length of the hypotenuse.
- 2 In the right-angled triangle, the longest side is the .....
- 3 The straight line drawn from the vertex of the isosceles triangle, perpendicular to the base ..... this vertex.
- 4 The measure of the exterior angle of the equilateral triangle equals ..... $^\circ$
- 5 The number of axes of symmetry of the isosceles triangle is .....

3 [a] In the opposite figure :

ABC is a triangle,  $AB = AC$ ,  $m(\angle B) = (X + 5)^\circ$

,  $m(\angle C) = (2X - 15)^\circ$

Find :  $m(\angle A)$  (show all of your work)



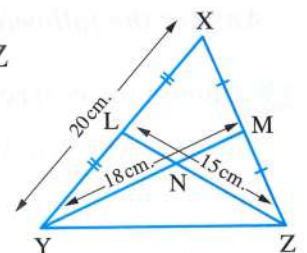
[b] In the opposite figure :

N is the point of concurrence of the medians of the triangle XYZ

,  $LZ = 15$  cm.,  $YM = 18$  cm.

,  $XY = 20$  cm.

Find : The perimeter of the triangle NLY



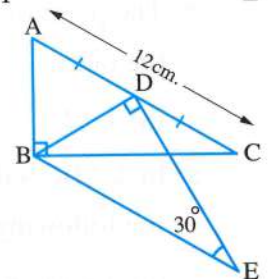
[c] In the opposite figure :

$m(\angle ABC) = m(\angle BDE) = 90^\circ$

, D is the midpoint of  $\overline{AC}$

,  $m(\angle E) = 30^\circ$ ,  $AC = 12$  cm.

Find with proof : The length of  $\overline{BE}$



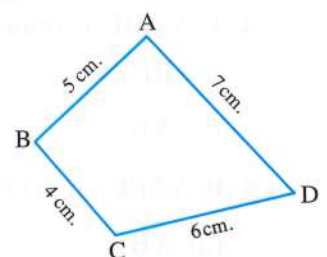
4 [a] In the opposite figure :

ABCD is a quadrilateral in which :

$AB = 5$  cm.,  $BC = 4$  cm.,  $CD = 6$  cm.

,  $AD = 7$  cm.

Prove that :  $m(\angle ABC) > m(\angle ADC)$

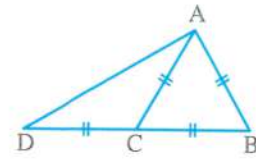




[b] In the opposite figure :

$$AB = AC = CB = CD$$

Prove that :  $\overline{AB} \perp \overline{AD}$



[c] XYZ is a triangle in which :  $XY = 10$  cm. ,  $YZ = 6$  cm. and  $XZ = 8$  cm.

Arrange the measures of the angles of the triangle.

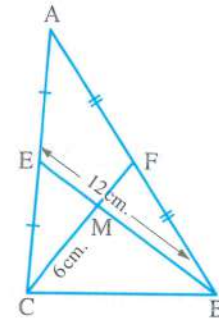
[d] In the opposite figure :

ABC is a triangle in which : F , E are the midpoints of  $\overline{AB}$  and  $\overline{AC}$  respectively

$$EB = 12 \text{ cm.}$$

$$MC = 6 \text{ cm.}$$

Find with proof : The length of each of  $\overline{EM}$  and  $\overline{MF}$

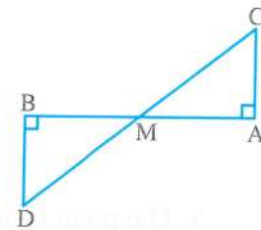


5 [a] In the opposite figure :

$$\overline{DC} \cap \overline{AB} = \{M\}$$

$$m(\angle A) = m(\angle B) = 90^\circ$$

Prove that :  $DC > AB$



[b] ABC is a triangle in which :  $m(\angle A) = (6x)^\circ$

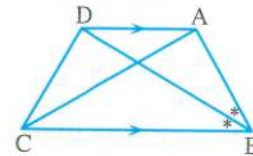
$$m(\angle B) = (4x - 9)^\circ, m(\angle C) = 3(x - 2)^\circ$$

Arrange the lengths of the sides of the triangle.

[c] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$  ,  $\overline{BD}$  bisects  $\angle ABC$

Prove that :  $\triangle BAD$  is an isosceles triangle.



4

Giza Governorate



South Giza Administration

Answer the following questions :

1 Choose the correct answer :

1 If the measures of two angles of a triangle are  $40^\circ$  ,  $100^\circ$  , then the triangle is ..... triangle.

(a) an isosceles (b) an equilateral (c) a scalene (d) a right-angled

2 The angle whose measure is more than  $90^\circ$  and less than  $180^\circ$  is ..... angle.

(a) an acute (b) an obtuse (c) a straight (d) a reflex

- 3 If the lengths of two sides in an isosceles triangle are 7 cm. and 3 cm. , then the length of the third side is ..... cm.  
 (a) 3 (b) 10 (c) 7 (d) 4
- 4 In  $\triangle ABC$  , if  $m(\angle B) = 120^\circ$  , then the longest side in it is .....  
 (a)  $\overline{BC}$  (b)  $\overline{AC}$  (c)  $\overline{AB}$  (d) its median.
- 5 If  $\triangle ABC$  is right-angled at B ,  $AB = 3$  cm. ,  $BC = 4$  cm. , then the length of the median from B is ..... cm.  
 (a) 5 (b) 4 (c) 2.5 (d) 6
- 6 In  $\triangle ABC$  , if  $m(\angle A) = 30^\circ$  ,  $m(\angle B) = 90^\circ$  and  $AC = 10$  cm. , then  $BC =$  .....  
 (a) 20 cm. (b) 15 cm. (c) 10 cm. (d) 5 cm.

2 Complete each of the following :

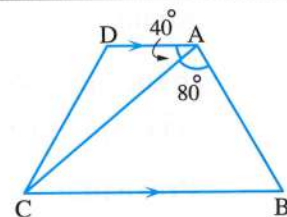
- 1 The angle of measure  $70^\circ$  complements an angle of measure ..... $^\circ$
- 2 In  $\triangle ABC$  , if  $AB = 3$  cm. ,  $BC = 5$  cm. , then  $AC \in$  ]..... , .....[
- 3 If  $\overline{AB} \equiv \overline{CD}$  and  $AB = 6$  cm. , then  $AB + CD =$  ..... cm.
- 4 The bisector of the vertex angle of an isosceles triangle ..... and .....
- 5 The point of intersection of the medians of the triangle divides each median in the ratio ..... : ..... from the vertex.

3 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$  ,  $m(\angle BAC) = 80^\circ$

and  $m(\angle DAC) = 40^\circ$

**Prove that :**  $BC > AC$



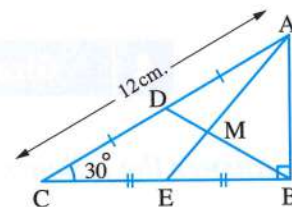
[b] In the opposite figure :

$\triangle ABC$  is right-angled at B ,  $m(\angle C) = 30^\circ$

, D is the midpoint of  $\overline{AC}$

, E is the midpoint of  $\overline{BC}$  ,  $AC = 12$  cm.

**Find :** The length of each of  $\overline{BD}$  ,  $\overline{BM}$  and  $\overline{AB}$

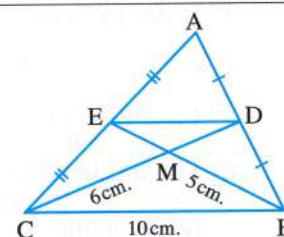


4 [a] In the opposite figure :

D and E are the midpoints of  $\overline{AB}$  and  $\overline{AC}$  respectively

,  $BC = 10$  cm. ,  $MB = 5$  cm. and  $MC = 6$  cm.

**Find :** The perimeter of  $\triangle MDE$



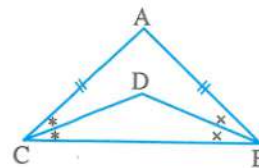


[b] In the opposite figure :

$AB = AC$  ,  $\overline{BD}$  bisects  $\angle ABC$

and  $\overline{CD}$  bisects  $\angle ACB$

Prove that :  $\triangle DBC$  is an isosceles triangle.

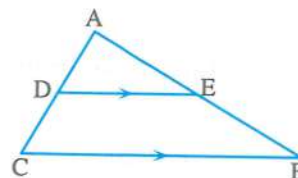


5 [a] In the opposite figure :

$ABC$  is a triangle in which :

$AB > AC$  and  $\overline{DE} \parallel \overline{BC}$

Prove that :  $m(\angle ADE) > m(\angle AED)$

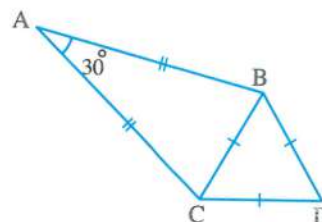


[b] In the opposite figure :

$m(\angle A) = 30^\circ$  ,  $AB = AC$

and  $\triangle DBC$  is equilateral.

Find :  $m(\angle ABD)$



5

Giza Governorate



Boulaq El Dakroul Directorate  
Dar El Hanan Lang. Sch. For Girls

Answer the following questions :

1 Choose the correct answer :

1 The lengths 9 cm. , 4 cm. and ..... may be the side lengths of an isosceles triangle.

- (a) 9 cm. (b) 13 cm. (c) 5 cm. (d) 4 cm.

2 In  $\triangle ABC$  , if  $m(\angle B) = 130^\circ$  , then the longest side of it is .....

- (a)  $\overline{BC}$  (b)  $\overline{AC}$  (c)  $\overline{AB}$  (d) its median.

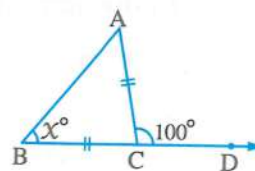
3 In the opposite figure :

$CA = CB$  ,  $m(\angle B) = x^\circ$

,  $m(\angle ACD) = 100^\circ$  where  $C \in \overline{BD}$

, then  $x = \dots\dots\dots$

- (a)  $50^\circ$  (b)  $100^\circ$  (c)  $150^\circ$  (d)  $200^\circ$



4 The measure of the exterior angle of an equilateral triangle equals .....

- (a)  $30^\circ$  (b)  $60^\circ$  (c)  $90^\circ$  (d)  $120^\circ$

5 In  $\triangle ABC$  , if  $AB = 6$  cm. and  $AC = 7$  cm. , then  $BC \in \dots\dots\dots$

- (a)  $]6, 13[$  (b)  $[6, 7[$  (c)  $]1, 13[$  (d)  $[1, 7[$

**6 In the opposite figure :**

$AD = DC$  ,  $m(\angle C) = 30^\circ$

,  $m(\angle ABC) = 90^\circ$  ,  $AB = 5$  cm.

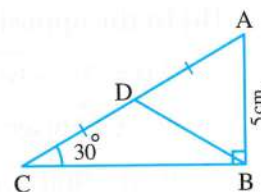
, then the perimeter of  $\triangle ABD = \dots\dots\dots$  cm.

(a) 5

(b) 15

(c) 20

(d) 25



**2 Complete the following :**

**1** ABC is a triangle in which  $AB = AC$  and  $m(\angle A) = 60^\circ$  , if its perimeter = 18 cm.  
then  $BC = \dots\dots\dots$  cm.

**2** The number of the axes of symmetry of the equilateral triangle equals  $\dots\dots\dots$

**3** The longest side of the right-angled triangle is the  $\dots\dots\dots$

**4** If the angles of a triangle are congruent , then the triangle is  $\dots\dots\dots$

**5** In  $\triangle ABC$  , if  $AB > BC$  , then  $m(\angle A) \dots\dots\dots m(\angle C)$

**3 [a] In the opposite figure :**

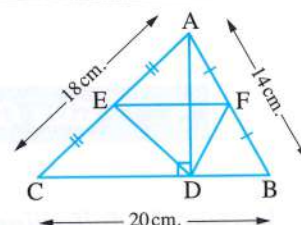
ABC is a triangle in which  $AB = 14$  cm.

,  $AC = 18$  cm. ,  $BC = 20$  cm.

, E is the midpoint of  $\overline{AC}$

, F is the midpoint of  $\overline{AB}$  and  $\overline{AD} \perp \overline{BC}$

**Find :** The perimeter of  $\triangle DEF$

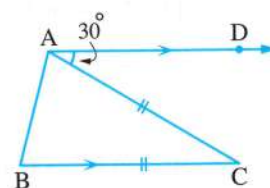


**[b] In the opposite figure :**

ABC is a triangle in which  $AC = BC$

,  $\overline{AD} \parallel \overline{BC}$  ,  $m(\angle DAC) = 30^\circ$

**Find with proof :** The measures of the angles of  $\triangle ABC$



**4 [a] In the opposite figure :**

$AB = BC = AC = DC$

**Prove that :**

$m(\angle BAD) = 90^\circ$

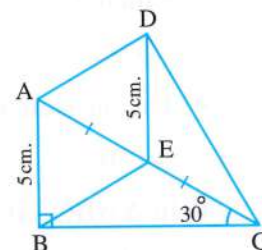
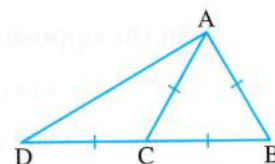
**[b] In the opposite figure :**

$m(\angle ABC) = 90^\circ$  , E is the midpoint of  $\overline{AC}$

,  $m(\angle ACB) = 30^\circ$

,  $AB = DE = 5$  cm.

**Prove that :**  $m(\angle ADC) = 90^\circ$





- 5 [a] In  $\triangle ABC$ ,  $m(\angle A) = 40^\circ$ ,  $m(\angle B) = 75^\circ$ ,  $m(\angle C) = 65^\circ$ , arrange the lengths of the sides of this triangle descendingly.

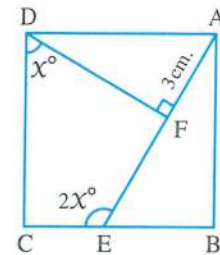
[b] In the opposite figure :

ABCD is a square,  $E \in \overline{BC}$

where  $m(\angle FDC) = x^\circ$  and  $m(\angle FEC) = 2x^\circ$

,  $\overline{DF} \perp \overline{AE}$ ,  $AF = 3$  cm.

Calculate : The area of the square ABCD



6

Alexandria Governorate



El-Montazah Educational Zone  
Leaders Language School

Answer the following questions :

1 Complete :

- 1 If  $\triangle ABC$  is a right-angled triangle at B,  $m(\angle A) = 30^\circ$ ,  $AC = 10$  cm, then  $CB = \dots\dots\dots$  cm.
- 2 In  $\triangle ABC$ ,  $m(\angle A) = m(\angle B) = m(\angle C)$ , then the measure of the exterior angle equals  $\dots\dots\dots^\circ$
- 3 In  $\triangle ABC$ ,  $AB = AC$ ,  $m(\angle B) = x + 30^\circ$ ,  $m(\angle C) = 2x + 5^\circ$ , then  $x = \dots\dots\dots^\circ$
- 4 In a triangle, if two angles are unequal in measure, then the greater angle in measure is opposite to  $\dots\dots\dots$
- 5 In any triangle, the sum of the lengths of any two sides  $\dots\dots\dots$  the length of the third side.

2 Choose the correct answer :

- 1 If  $\overline{AD}$  is a median of  $\triangle ABC$  and M is the point of concurrence of the medians, then  $AM = \dots\dots\dots AD$   
 (a)  $\frac{2}{3}$  (b)  $\frac{1}{2}$  (c)  $\frac{3}{2}$  (d) 2
- 2 The measure of one of the base angles of an isosceles triangle is  $65^\circ$ , then the measure of its vertex angle equals  $\dots\dots\dots^\circ$   
 (a) 65 (b) 50 (c) 130 (d) 55
- 3 In the triangle ABC, if  $m(\angle A) = 50^\circ$ ,  $m(\angle B) = 60^\circ$ , then the longest side is  $\dots\dots\dots$   
 (a)  $\overline{AB}$  (b)  $\overline{BC}$  (c)  $\overline{AC}$  (d) 110 cm.
- 4 The numbers which can not be side lengths of a triangle are  $\dots\dots\dots$   
 (a) 3, 3, 3 (b) 3, 3, 4 (c) 3, 3, 5 (d) 3, 3, 6

## Geometry

5 The number of the axes of symmetry of the scalene triangle is .....

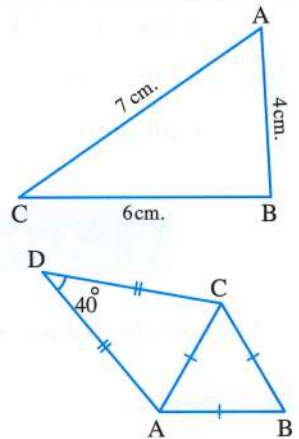
- (a) 1 (b) 2 (c) 3 (d) 0

6 If  $\triangle XYZ$  is right-angled at Y, then  $XZ$  .....  $YZ$

- (a) < (b)  $\leq$  (c) > (d) =

3 [a] In the opposite figure :

Arrange the angles of  $\triangle ABC$  descendingly due to their measures.



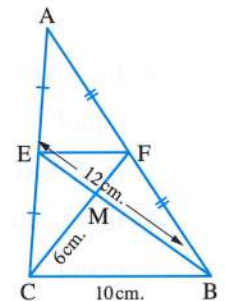
[b] In the opposite figure :

$m(\angle D) = 40^\circ$ ,  $DA = DC$   
and  $\triangle ABC$  is an equilateral triangle.

Find :  $m(\angle DCB)$

4 [a] In the opposite figure :

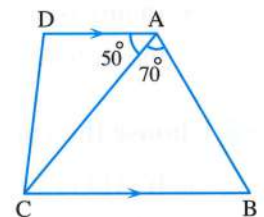
$ABC$  is a triangle  
,  $F$  and  $E$  are the midpoints of  $\overline{AB}$  and  $\overline{AC}$  respectively  
If  $BE = 12$  cm. ,  $CM = 6$  cm.  
,  $BC = 10$  cm.  
, then find : The perimeter of  $\triangle MEF$



[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$ ,  $m(\angle CAB) = 70^\circ$   
,  $m(\angle DAC) = 50^\circ$

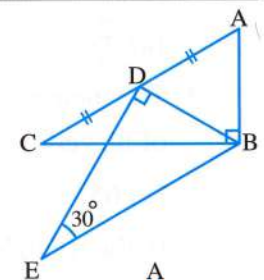
Prove that :  $BC > AC$



5 [a] In the opposite figure :

$m(\angle ABC) = m(\angle BDE) = 90^\circ$   
,  $m(\angle E) = 30^\circ$   
,  $D$  is the midpoint of  $\overline{AC}$

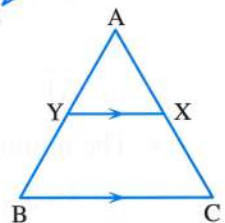
Prove that :  $AC = BE$



[b] In the opposite figure :

$ABC$  is a triangle in which :  
 $AB = AC$ ,  $\overline{XY} \parallel \overline{CB}$

Prove that :  $\triangle AXY$  is an isosceles triangle.





7

Alexandria Governorate

Borg El-Arab Zone  
Mathematical Supervisors

Answer the following questions :

## 1 Choose the correct answer :

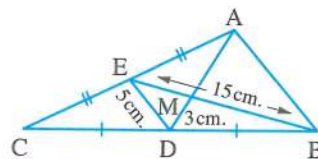
- 1 An isosceles triangle has two sides of lengths 6 cm. and 12 cm. , then the length of the third side equals ..... cm.  
(a) 6 (b) 9 (c) 12 (d) 18
- 2 In  $\triangle XYZ$  , if  $m(\angle Y) = 115^\circ$  , then the longest side is .....  
(a)  $\overline{XY}$  (b)  $\overline{YZ}$   
(c)  $\overline{ZX}$  (d) the median of the triangle.
- 3 The lengths 5 cm. , 4 cm. and ..... cm. are lengths of sides of a triangle.  
(a) 8 (b) 9 (c) 12 (d) 10
- 4 The triangle having two angles of measures  $74^\circ$  and  $53^\circ$  is ..... triangle.  
(a) an isosceles (b) an equilateral (c) a scalene (d) a right-angled
- 5 The intersection point of the medians of a triangle divides each median by the ratio 1 : ..... from the base.  
(a) 1 (b) 2 (c) 3 (d) 4
- 6 If two sides of a triangle have unequal lengths , then the smaller side is opposite to the angle of the ..... measure from that is opposite to the other side.  
(a) greater (b) smaller (c) equal (d) otherwise

## 2 Complete each of the following :

- 1 The length of the median of the right-angled triangle drawn from the vertex of the right angle equals ..... the length of the hypotenuse.
- 2 The number of the axes of symmetry of an isosceles triangle is .....
- 3 The measure of the exterior angle of the equilateral triangle equals ..... $^\circ$
- 4 The two angles of the base of an isosceles triangle are .....
- 5 The sum of the measures of the accumulative angles at a point equals ..... $^\circ$

## 3 [a] In the opposite figure :

If E is the midpoint of  $\overline{AC}$  and D is the midpoint of  $\overline{BC}$   
 ,  $ED = 5$  cm. ,  $MD = 3$  cm. and  $BE = 15$  cm.  
 , find : The perimeter of  $\triangle AMB$



- [b] ABC is a triangle in which :  $m(\angle B) = 40^\circ$  ,  $m(\angle C) = 80^\circ$   
 Arrange its side lengths ascendingly.

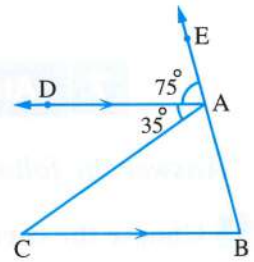
**4 [a] In the opposite figure :**

$$\overrightarrow{AD} \parallel \overrightarrow{BC}$$

$$, m(\angle EAD) = 75^\circ$$

$$\text{and } m(\angle DAC) = 35^\circ$$

**Prove that :**  $AC > AB$



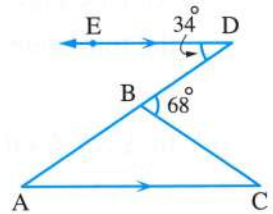
**[b] In the opposite figure :**

$$\overrightarrow{DE} \parallel \overrightarrow{AC}$$

$$, m(\angle EDA) = 34^\circ$$

$$\text{and } m(\angle DBC) = 68^\circ$$

**Prove that :**  $\triangle ABC$  is an isosceles triangle.

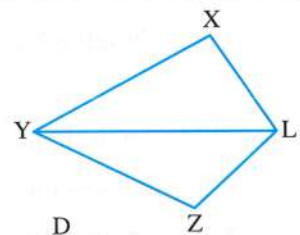


**5 [a] In the opposite figure :**

$$\text{If } XY > XL$$

$$, YZ > ZL$$

**, prove that :**  $m(\angle XLZ) > m(\angle XYZ)$



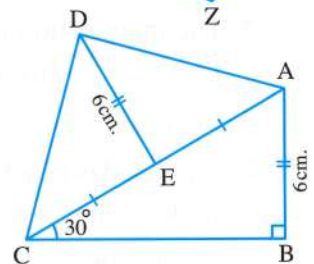
**[b] In the opposite figure :**

$$m(\angle B) = 90^\circ , m(\angle ACB) = 30^\circ$$

, E is the midpoint of  $\overline{AC}$  and  $AB = DE = 6 \text{ cm}$ .

**Find :** **1** The length of  $\overline{AC}$

**2**  $m(\angle ADC)$



**Answer the following questions :**

**1 Choose the correct answer :**

**1** In any isosceles triangle , the type of the base angles is .....

- (a) acute. (b) right. (c) obtuse. (d) reflex.

**2** The medians of the triangle intersect at .....

- (a) 4 points. (b) 3 points. (c) 2 points. (d) a point.

**3** ABC is a triangle in which  $m(\angle A) = 100^\circ$  , then the greatest side in length in the triangle is .....

- (a)  $\overline{AB}$  (b)  $\overline{AC}$  (c)  $\overline{BC}$  (d)  $\overline{BD}$

**4** The numbers which can be lengths of sides of a triangle are .....

- (a) 0 , 3 , 5 (b) 3 , 3 , 5 (c) 3 , 3 , 6 (d) 3 , 3 , 7



- 5 The triangle which has three axes of symmetry is .....  
 (a) scalene. (b) isosceles. (c) right-angled. (d) equilateral.
- 6 If  $\triangle ABC$  is an equilateral triangle, then  $m(\angle B) = \dots\dots\dots$   
 (a)  $30^\circ$  (b)  $60^\circ$  (c)  $70^\circ$  (d)  $90^\circ$

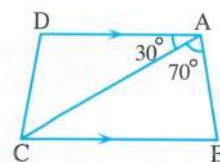
**2 Complete :**

- 1 In  $\triangle ABC$ , if the point D is the midpoint of  $\overline{AB}$  and the point E is the midpoint of  $\overline{AC}$ , then  $DE = \dots\dots\dots BC$
- 2 The base angles in the isosceles triangle are ..... in measure.
- 3 In the triangle, the smallest angle in measure is opposite to ..... side in length.
- 4 In the triangle ABC, if  $AB = AC$ ,  $m(\angle A) = 70^\circ$ , so  $m(\angle C) = \dots\dots\dots^\circ$
- 5 The point of concurrence of the medians of the triangle divides each median in the ratio of ..... from the base.

**3 [a] In the opposite figure :**

$\overline{AD} \parallel \overline{BC}$ ,  $m(\angle BAC) = 70^\circ$   
 $m(\angle DAC) = 30^\circ$

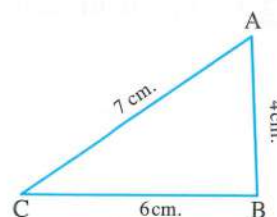
**Prove that :**  $AC > BC$



**[b] In the opposite figure :**

$AB = 4 \text{ cm.}$ ,  $BC = 6 \text{ cm.}$   
 $AC = 7 \text{ cm.}$

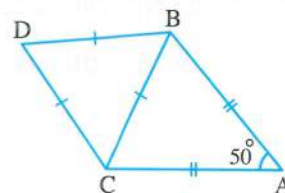
Arrange the measures of the angles of the triangle ABC descendingly.



**4 [a] In the opposite figure :**

$m(\angle A) = 50^\circ$ ,  $AB = AC$   
 and  $\triangle DBC$  is an equilateral triangle.

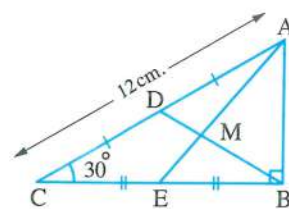
**Find :**  $m(\angle ABD)$



**[b] In the opposite figure :**

$\triangle ABC$  is right-angled at B,  $m(\angle C) = 30^\circ$   
 $D$  is the midpoint of  $\overline{AC}$   
 $E$  is the midpoint of  $\overline{BC}$ ,  $AC = 12 \text{ cm.}$

**Find :** The length of each of  $\overline{BD}$ ,  $\overline{BM}$  and  $\overline{AB}$

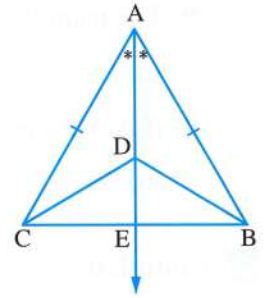


**5 [a] In the opposite figure :**

ABC is a triangle in which :  
 $AB = AC$  ,  $\overrightarrow{AE}$  bisects  $\angle BAC$   
 $\overrightarrow{AE} \cap \overrightarrow{BC} = \{E\}$  ,  $D \in \overrightarrow{AE}$

**Prove that :** 1  $BE = \frac{1}{2} BC$

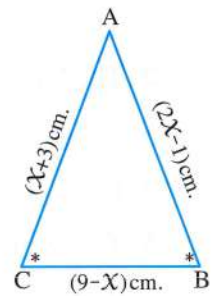
2  $BD = CD$



**[b] In the opposite figure :**

ABC is a triangle in which :  
 $m(\angle B) = m(\angle C)$   
 $AB = (2x - 1) \text{ cm.}$   
 $AC = (x + 3) \text{ cm.}$  ,  $BC = (9 - x) \text{ cm.}$

**Find :** The perimeter of the triangle ABC



**9**

**El-Sharkia Governorate**



Hehia Educational Zone  
 Governmental Language Schools

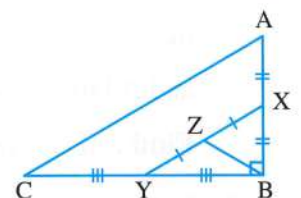
**Answer the following questions :**

**1 Complete the following :**

- 1 The base angles of the isosceles triangle are .....
- 2 In  $\triangle ABC$  , if  $\overrightarrow{AB} \perp \overrightarrow{BC}$  and  $AB = BC$  , then  $m(\angle A) = \dots\dots\dots^\circ$
- 3 In  $\triangle ABC$  , if  $AB > AC$  , then  $m(\angle C) \dots\dots\dots m(\angle B)$
- 4 The triangle whose side lengths are  $(2x - 1) \text{ cm.}$  ,  $(x + 3) \text{ cm.}$  ,  $7 \text{ cm.}$  becomes an equilateral triangle when  $x = \dots\dots\dots \text{ cm.}$

**5 In the opposite figure :**

$AC = \dots\dots\dots BZ$



**2 Choose the correct answer from those given :**

- 1 The sum of lengths of any two sides in a triangle is ..... the length of the third side.
  - (a) smaller than
  - (b) greater than
  - (c) equal to
  - (d) twice

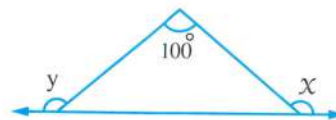


- 2 The measure of the exterior angle of the equilateral triangle equals .....
- (a)  $30^\circ$  (b)  $60^\circ$  (c)  $90^\circ$  (d)  $120^\circ$
- 3 The length of the hypotenuse of the right-angled triangle equals ..... the length of the median drawn from the vertex of the right angle.
- (a) third (b) quarter (c) half (d) twice
- 4 The lengths of two sides in a triangle are 4 cm. and 9 cm. and it has one axis of symmetry, then the length of the third side is .....
- (a) 4 cm. (b) 5 cm. (c) 9 cm. (d) 13 cm.
- 5 The quadrilateral ABCD in which  $\overline{BD}$  is an axis of symmetry of  $\overline{AC}$  may be a .....
- (a) rhombus. (b) rectangle. (c) parallelogram. (d) trapezium.

6 In the opposite figure :

$x + y = \dots\dots\dots$

- (a)  $100^\circ$  (b)  $280^\circ$   
(c)  $140^\circ$  (d)  $80^\circ$

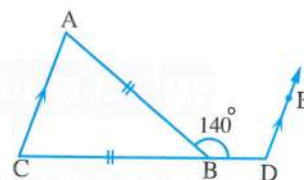


3 [a] In the opposite figure :

$AB = BC$ ,  $m(\angle ABD) = 140^\circ$

and  $\overline{AC} \parallel \overline{DE}$

Find :  $m(\angle EDC)$



[b] In the opposite figure :

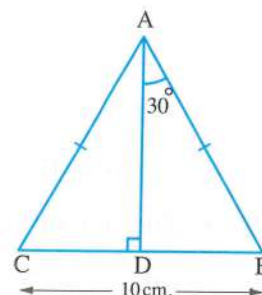
$AB = AC$ ,  $BC = 10$  cm.

,  $m(\angle BAD) = 30^\circ$

and  $\overline{AD} \perp \overline{BC}$

Find : 1 The length of each of  $\overline{BD}$  and  $\overline{AD}$

2 The area of  $\triangle ABC$



4 [a] In the opposite figure :

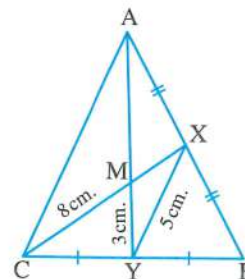
ABC is a triangle, X is the midpoint of  $\overline{AB}$

, Y is the midpoint of  $\overline{BC}$ ,  $XY = 5$  cm.

,  $\overline{XC} \cap \overline{AY} = \{M\}$  where  $CM = 8$  cm.

,  $YM = 3$  cm.

Find : The perimeter of  $\triangle MXY$

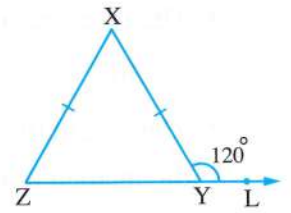


[b] In the opposite figure :

$$XY = XZ, m(\angle XYL) = 120^\circ, L \in \overrightarrow{ZY}$$

Prove that :

$\triangle XYZ$  is an equilateral triangle.



5 [a] In the opposite figure :

$XYZ$  is a right-angled triangle

at  $Y$  and  $M \in \overline{YZ}$

Prove that :  $XZ > XM$

[b] In the opposite figure :

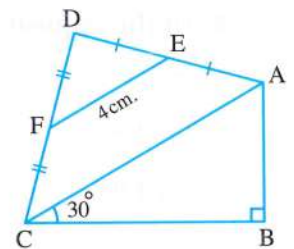
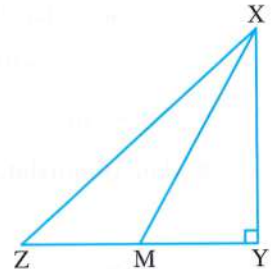
$ABCD$  is a quadrilateral in which :

$m(\angle B) = 90^\circ$ ,  $E$  is the midpoint of  $\overline{AD}$

,  $F$  is the midpoint of  $\overline{CD}$

,  $m(\angle ACB) = 30^\circ$  and  $EF = 4$  cm.

Find by proof : The length of  $\overline{AB}$



## 10 El-Gharbia Governorate



The Central Maths Supervision  
Official Language Schools

Answer the following questions :

1 Choose the correct answer :

[1] In  $\triangle ABC$ , if  $m(\angle C) = 65^\circ$ ,  $m(\angle A) = 75^\circ$ , then .....

- (a)  $AB > BC$       (b)  $AB < AC$       (c)  $BC > AB$       (d)  $AB = AC$

[2] The sum of measures of two angles in the equilateral triangle equals .....

- (a)  $180^\circ$       (b)  $60^\circ$       (c)  $360^\circ$       (d)  $120^\circ$

[3] The numbers 5, 4, ..... can be lengths of sides of a triangle.

- (a) 8      (b) 9      (c) 10      (d) 12

[4] If  $M$  is the point of intersection of the medians of  $\triangle ABC$  and  $D$  is the midpoint of  $\overline{BC}$ , then  $AD =$  .....

- (a)  $2 AM$       (b)  $3 MD$       (c)  $\frac{2}{3} MD$       (d)  $AM$

[5] If  $\triangle ABC$  is right-angled at  $B$ , then .....

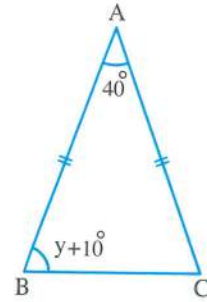
- (a)  $AC < AB$       (b)  $AC > BC$       (c)  $AB = AC$       (d)  $BC > AC$



6 In the opposite figure :

$y = \dots\dots\dots$

- (a)  $30^\circ$
- (b)  $40^\circ$
- (c)  $60^\circ$
- (d)  $70^\circ$



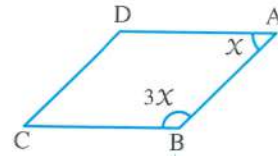
2 Complete the following :

- 1 In  $\triangle XYZ$ , if  $XY = XZ$ ,  $\overline{XL} \perp \overline{YZ}$ , then  $\overline{XL}$  bisects each of  $\dots\dots\dots$  and  $\dots\dots\dots$
- 2 The number of axes of symmetry of the isosceles triangle is  $\dots\dots\dots$
- 3 If ABC is a right-angled triangle at B,  $AB = BC$ , then  $m(\angle C) = \dots\dots\dots^\circ$
- 4 The longest side of the right-angled triangle is  $\dots\dots\dots$

5 In the opposite figure :

ABCD is a parallelogram

, then  $X = \dots\dots\dots^\circ$



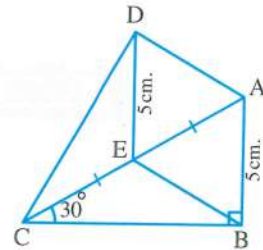
3 [a] In the opposite figure :

ABC is a right-angled triangle at B

,  $m(\angle ACB) = 30^\circ$ ,  $AB = 5$  cm.

and E is the midpoint of  $\overline{AC}$

If  $DE = 5$  cm., **prove that** :  $m(\angle ADC) = 90^\circ$



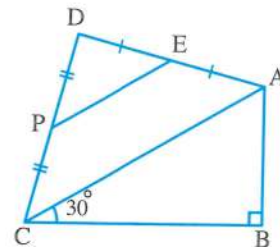
[b] In the opposite figure :

$m(\angle B) = 90^\circ$ ,  $m(\angle ACB) = 30^\circ$

E is the midpoint of  $\overline{AD}$

, P is the midpoint of  $\overline{CD}$

**Prove that** :  $AB = EP$



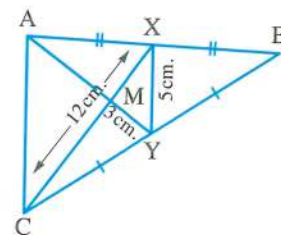
4 [a] In the opposite figure :

M is the intersection point of the medians

of  $\triangle ABC$ ,  $XY = 5$  cm.

,  $CX = 12$  cm.,  $MY = 3$  cm.

**Find with proof** : The perimeter of  $\triangle MAC$

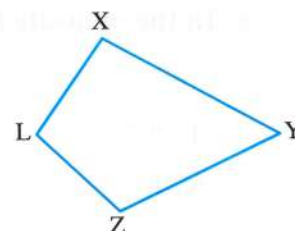


**[b] In the opposite figure :**

$XY > XL$  and  $YZ > ZL$

**Prove that :**

$m(\angle XLZ) > m(\angle XYZ)$



**5 [a] In the opposite figure :**

ABC is a triangle in which  $AB = AC$

,  $\overrightarrow{AE}$  bisects  $\angle BAC$

**Prove that :**

**1**  $BE = \frac{1}{2} BC$

**2**  $BD = CD$

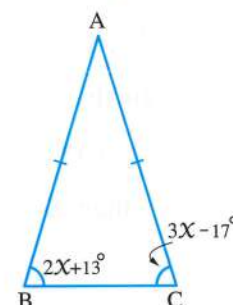
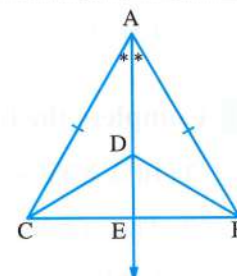
**[b] In the opposite figure :**

$AB = AC$  ,  $m(\angle B) = 2x + 13^\circ$

,  $m(\angle C) = 3x - 17^\circ$

**Find :**

The measures of the angles of  $\triangle ABC$



**Answer the following questions :**

**1 Choose the correct answer :**

**1** In  $\triangle ABC$  , if  $AB = 3$  cm. ,  $BC = 5$  cm. , then  $AC \in$  .....

(a)  $]3, 5[$  (b)  $[3, 5]$  (c)  $]2, 8[$  (d)  $[2, 8]$

**2** If the lengths of two sides of an isosceles triangle are 5 cm. and 10 cm. , then the length of the third side is ..... cm.

(a) 10 (b) 5 (c) 15 (d) 4

**3** In  $\triangle ABC$  , if  $m(\angle A) = 100^\circ$  , then the longest side of it is .....

(a)  $\overline{AB}$  (b)  $\overline{AC}$  (c)  $\overline{BC}$  (d) its median.

**4** In  $\triangle ABC$  , if  $2m(\angle A) = m(\angle B) + m(\angle C)$  , then  $m(\angle A) =$  .....°

(a) 45 (b) 90 (c) 60 (d) 120

**5** If  $A \in$  the axis of symmetry of  $\overline{BC}$  , then  $\overline{AB}$  .....  $\overline{AC}$

(a)  $\equiv$  (b)  $=$  (c)  $//$  (d)  $\perp$



- 6 The point of intersection of the medians of the triangle divides each of them in the ratio ..... from the vertex.

(a) 2 : 1                      (b) 3 : 1                      (c) 3 : 2                      (d) 1 : 2

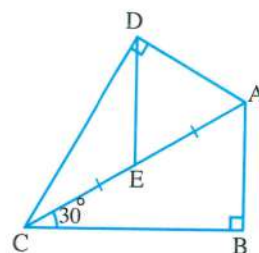
2 Complete :

- 1 The base angles of an isosceles triangle are ..... in measure.
- 2 If  $\triangle ABC$  has one axis of symmetry and  $m(\angle A) = 120^\circ$ , then  $m(\angle B) = \dots\dots\dots^\circ$
- 3 In  $\triangle ABC$ , if  $AB > AC$ , then  $m(\angle C) > \dots\dots\dots$
- 4 The bisector of the vertex angle of an isosceles triangle ..... and .....
- 5 In a triangle, if two angles are unequal in measure, then the greater angle in measure is opposite to .....

3 [a] In the opposite figure :

$m(\angle B) = 90^\circ$ ,  $m(\angle ADC) = 90^\circ$   
 $m(\angle ACB) = 30^\circ$   
 $\overline{DE}$  is a median in  $\triangle ADC$

Prove that :  $AB = DE$



- [b] In  $\triangle ABC$ , if  $AB = 7$  cm.,  $BC = 5$  cm.,  $AC = 6$  cm., arrange the measures of the angles of the triangle ABC ascendingly.

4 [a] In the opposite figure :

$AB > BC$ ,  $AD > CD$

Prove that :

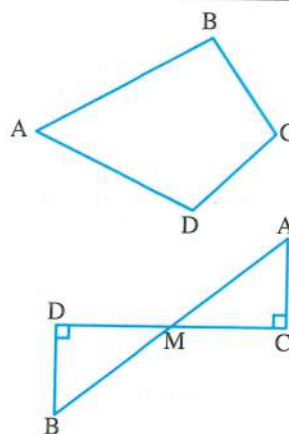
$m(\angle C) > m(\angle A)$

[b] In the opposite figure :

$\overline{AB} \cap \overline{CD} = \{M\}$

$m(\angle C) = m(\angle D) = 90^\circ$

Prove that :  $AB > DC$

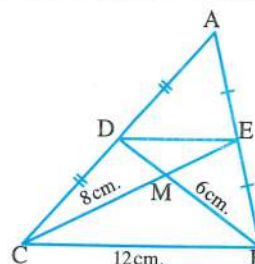


5 [a] In the opposite figure :

If D, E are the midpoints of  $\overline{AC}$ ,  $\overline{AB}$

$MB = 6$  cm.,  $MC = 8$  cm.,  $BC = 12$  cm.

Find : The perimeter of  $\triangle MDE$

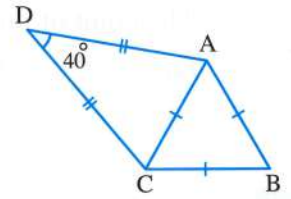


[b] In the opposite figure :

$$AB = BC = AC, DA = DC$$

$$, m(\angle D) = 40^\circ$$

Find :  $m(\angle BAD)$



12

Port Said Governorate



Educational Directorate  
Math Department

Answer the following questions :

1 Choose the correct answer :

1 In  $\triangle ABC$  , if  $AC = 4$  cm. ,  $BC = 3$  cm. , then  $m(\angle B) \dots\dots\dots m(\angle A)$

- (a)  $>$  (b)  $<$  (c)  $=$  (d)  $\leq$

2 The length of the side opposite to the angle of measure  $30^\circ$  in the right-angled triangle equals  $\dots\dots\dots$  the length of the hypotenuse.

- (a) half (b) twice (c) third (d) quarter

3 In  $\triangle ABC$  , if  $m(\angle A) = 100^\circ$  and  $AB = AC$  , then  $m(\angle ABC) = \dots\dots\dots$

- (a)  $80^\circ$  (b)  $60^\circ$  (c)  $40^\circ$  (d)  $30^\circ$

4 The point of intersection of the medians of the triangle divides each of them in the ratio  $\dots\dots\dots$  from the base.

- (a) 1 : 3 (b) 3 : 1 (c) 1 : 2 (d) 2 : 1

5 If  $\triangle ABD$  is obtuse-angled at B and C is the midpoint of  $\overline{BD}$  , then the longest side is  $\dots\dots\dots$

- (a)  $\overline{AB}$  (b)  $\overline{AC}$  (c)  $\overline{AD}$  (d)  $\overline{BD}$

6 The triangle whose side lengths are 2 cm. ,  $(X + 3)$  cm. and 5 cm. , becomes an isosceles triangle when  $X = \dots\dots\dots$  cm.

- (a) 1 (b) 2 (c) 3 (d) 4

2 Complete :

1 The median of an isosceles triangle from the vertex angle bisects  $\dots\dots\dots$  and is perpendicular to  $\dots\dots\dots$

2 The measure of the exterior angle at any vertex of the equilateral triangle is  $\dots\dots\dots^\circ$

3 The base angles of the isosceles triangle are  $\dots\dots\dots$

4 ABC is a triangle in which  $AB = 4$  cm. ,  $BC = 6$  cm. , then  $AC \in ] \dots\dots\dots , \dots\dots\dots [$

5 The longest side in the right-angled triangle is  $\dots\dots\dots$

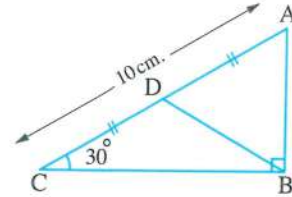


- 3 [a] In  $\triangle ABC$ , if  $m(\angle A) = (6x)^\circ$ ,  $m(\angle B) = (4x - 9)^\circ$  and  $m(\angle C) = 3(x - 2)^\circ$ , arrange the side lengths of  $\triangle ABC$  ascendingly.

[b] In the opposite figure :

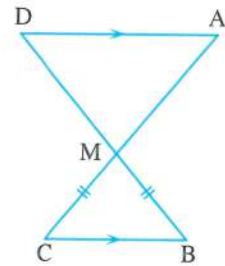
$m(\angle ABC) = 90^\circ$ ,  $m(\angle C) = 30^\circ$   
 $AD = DC$  and  $AC = 10$  cm.

Find : The perimeter of  $\triangle ABD$



- 4 [a] In the opposite figure :

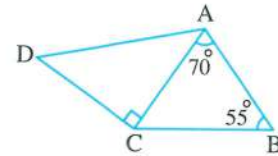
If  $\overline{AC} \cap \overline{BD} = \{M\}$   
 $\overline{AD} \parallel \overline{BC}$  and  $MB = MC$   
 , prove that :  
 $\triangle MAD$  is isosceles.



[b] In the opposite figure :

$m(\angle BAC) = 70^\circ$ ,  $m(\angle B) = 55^\circ$   
 and  $m(\angle ACD) = 90^\circ$

Prove that :  $AD > AB$



- 5 [a] In the opposite figure :

$m(\angle D) = 40^\circ$ ,  $DA = DC$   
 and  $\triangle ABC$  is equilateral

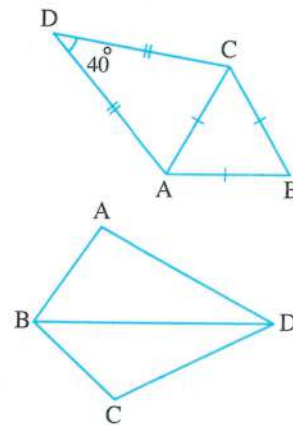
Find :  $m(\angle DCB)$

[b] In the opposite figure :

$AB < AD$  and  $BC < CD$

Prove that :

$m(\angle ABC) > m(\angle ADC)$




Answer the following questions :

- 1 Complete each of the following :

- 1 If the measure of one of the base angles of an isosceles triangle equals  $50^\circ$ , then the measure of the vertex angle equals ..... $^\circ$
- 2 The supplementary of the obtuse angle is ..... angle.

- 3 The longest side in the right-angled triangle is .....
- 4 The perpendicular straight line on a line segment from its midpoint is called .....
- 5 If 4 cm. , 7 cm. are the lengths of two sides in a triangle  
 , then ..... < the length of the third side < .....

2 Choose the correct answer :

- 1 The point of intersection of the medians of the triangle divides each of them in the ratio of ..... from the base.  
(a) 1 : 2 (b) 2 : 1 (c) 1 : 1 (d) 1 : 3
- 2 In  $\triangle ABC$  , if  $m(\angle B) = 70^\circ$  ,  $m(\angle C) = 50^\circ$  , then  $AB$  .....  $AC$   
(a) > (b) < (c) = (d)  $\geq$
- 3 The number of the quadrilaterals in the figure  is .....  
(a) 3 (b) 4 (c) 5 (d) 6
- 4 In the right-angled triangle , the length of the median from the vertex of the right angle equals ..... the length of the hypotenuse.  
(a)  $\frac{1}{2}$  (b) double (c)  $\frac{1}{3}$  (d)  $\frac{1}{4}$
- 5 The sum of the measures of the accumulative angles at a point equals .....°  
(a) 90 (b) 180 (c) 360 (d) 308
- 6 The number of lines of symmetry of  $\triangle ABC$  in which  $AB = AC$  ,  $m(\angle B) = 60^\circ$  is .....  
(a) 3 (b) 2 (c) 1 (d) zero

3 [a] In the opposite figure :

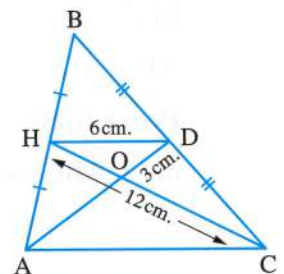
$HD = 6$  cm. ,  $HC = 12$  cm.

, H is the midpoint of  $\overline{AB}$

and D is the midpoint of  $\overline{BC}$

,  $DO = 3$  cm.

**Calculate :** The perimeter of the triangle AOC

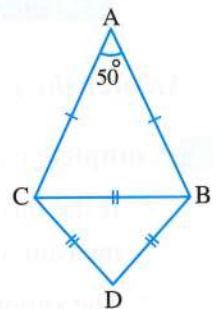


[b] In the opposite figure :

$AB = AC$  ,  $m(\angle A) = 50^\circ$

$\triangle CDB$  is equilateral.

**Find with proof :**  $m(\angle ABD)$





4 [a] In the opposite figure :

$$AB = AC, BD < CD$$

Prove that :

$$m(\angle ABD) > m(\angle ACD)$$

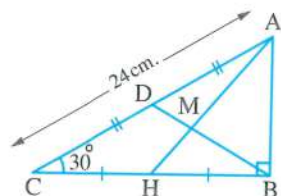
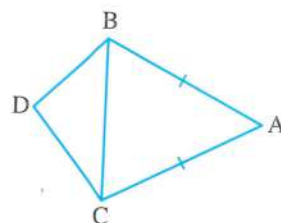
[b] In the opposite figure :

$\triangle ABC$  is right-angled at B

,  $\overline{AH}$ ,  $\overline{BD}$  are two medians

$$, m(\angle C) = 30^\circ, AC = 24 \text{ cm.}$$

Find : The length of each of  $\overline{AB}$ ,  $\overline{BD}$ ,  $\overline{BM}$



5 [a] In the opposite figure :

$\overline{BD}$  bisects  $\angle ABC$

,  $\overline{HD} \parallel \overline{BC}$

Prove that :

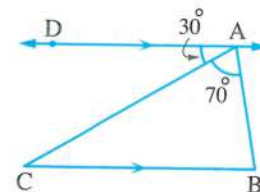
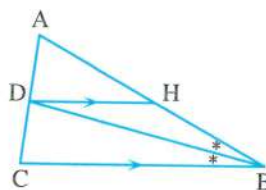
$\triangle HBD$  is an isosceles triangle.

[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$ ,  $m(\angle BAC) = 70^\circ$

$$, m(\angle DAC) = 30^\circ$$

Prove that :  $AC > BC$



14 El-Fayoum Governorate



East El-Fayoum Zone  
El-Eman Language School

Answer the following questions :

1 Choose the correct answer from those given :

1 In  $\triangle ABC$ , if  $(AB)^2 = (BC)^2 - (AC)^2$ ,  $m(\angle C) = 42^\circ$ , then  $m(\angle B) = \dots\dots\dots$

- (a)  $40^\circ$  (b)  $90^\circ$  (c)  $48^\circ$  (d)  $110^\circ$

2 The scalene triangle has  $\dots\dots\dots$  axes of symmetry.

- (a) 3 (b) 2 (c) 1 (d) 0

3 If A lies on the axis of symmetry of  $\overline{BC}$ , then  $AB \dots\dots\dots AC$

- (a)  $<$  (b)  $>$  (c)  $=$  (d)  $\leq$

- 4 If  $\overline{AD}$  is a median of  $\triangle ABC$ ,  $M$  is the point of concurrence of the medians, then  $MD = \dots\dots\dots AD$   
 (a)  $\frac{1}{3}$  (b)  $\frac{2}{3}$  (c)  $\frac{1}{2}$  (d)  $\frac{1}{4}$
- 5 If 10 cm., 5 cm. and  $x$  cm. are side lengths of an isosceles triangle, then  $x = \dots\dots\dots$  cm.  
 (a) 5 (b) 10 (c) 15 (d) 4
- 6 The measure of the exterior angle of the equilateral triangle equals  $\dots\dots\dots$   
 (a)  $60^\circ$  (b)  $90^\circ$  (c)  $50^\circ$  (d)  $120^\circ$

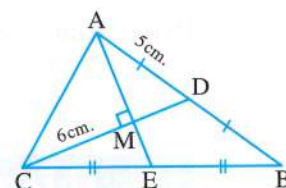
2 Complete the following :

- 1 The total area of a cuboid =  $120 \text{ cm}^2$  and its lateral area =  $96 \text{ cm}^2$ , then the area of its base equals  $\dots\dots\dots \text{ cm}^2$
- 2 The base angles of the isosceles triangle are  $\dots\dots\dots$
- 3  $ABC$  is a right-angled triangle at  $B$ ,  $m(\angle C) = 30^\circ$ ,  $AB = 5 \text{ cm}$ , then  $AC = \dots\dots\dots \text{ cm}$ .
- 4 In  $\triangle ABC$ , if  $m(\angle C) = 30^\circ$ ,  $m(\angle A) = 70^\circ$ , then the smallest side in length is  $\dots\dots\dots$
- 5 In any triangle, if the lengths of two sides are not equal, then the greater side in length is opposite to  $\dots\dots\dots$

3 [a] In the opposite figure :

$M$  is the concurrence point of the medians of  $\triangle ABC$ ,  
 $\overline{AM} \perp \overline{CD}$ ,  $AD = 5 \text{ cm}$ ,  $MC = 6 \text{ cm}$ .

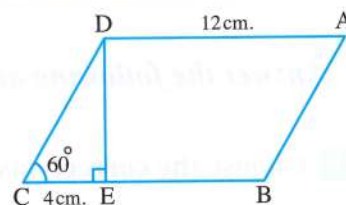
Find with proof : The length of  $\overline{ME}$



[b] In the opposite figure :

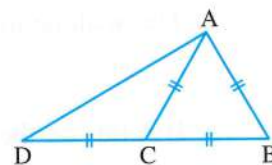
$ABCD$  is a parallelogram  
 $m(\angle C) = 60^\circ$ ,  $\overline{DE} \perp \overline{BC}$   
 $AD = 12 \text{ cm}$ ,  $CE = 4 \text{ cm}$ .

Find with proof : The perimeter of the parallelogram  $ABCD$



4 [a] In the opposite figure :

$ABC$  is an equilateral triangle  
 $D \in \overline{BC}$ ,  $BC = CD$   
 Prove that :  $\overline{AB} \perp \overline{AD}$





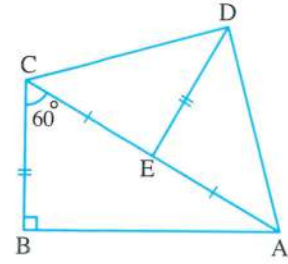
[b] In the opposite figure :

ABC is a right-angled triangle at B

,  $m(\angle ACB) = 60^\circ$ , E is the midpoint of  $\overline{AC}$

,  $DE = BC$

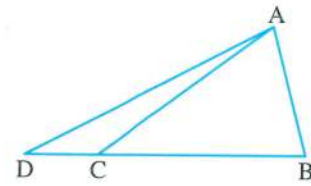
Prove that :  $m(\angle ADC) = 90^\circ$



5 [a] In the opposite figure :

$C \in \overline{BD}$ ,  $AC > AB$

Prove that :  $m(\angle B) > m(\angle D)$

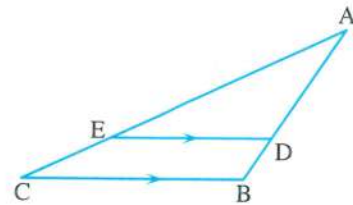


[b] In the opposite figure :

ABC is an obtuse-angled triangle at B

,  $\overline{DE} \parallel \overline{BC}$

Prove that :  $AE > AD$



15 Luxor Governorate



Armant Educational Directorate  
Mohamed Raafat Lang. Sch.

Answer the following questions :

1 Complete the following :

- 1 In the right-angled triangle , the ..... is the longest side.
- 2 In  $\triangle ABC$  , if D is the midpoint of  $\overline{BC}$  and  $AD = \frac{1}{2} BC$  , then  $m(\angle A) = \dots\dots\dots^\circ$
- 3 In  $\triangle ABC$  , if  $m(\angle B) = 65^\circ$  and  $m(\angle C) = 50^\circ$  , then the shortest side in  $\triangle ABC$  is .....
- 4 In  $\triangle ABC$  , if the point X is the midpoint of  $\overline{BC}$  , then  $\overline{AX}$  is called .....
- 5 The measure of the exterior angle of the equilateral triangle is .....

2 Choose the correct answer :

- 1 In  $\triangle ABC$  , if  $m(\angle B) > m(\angle C)$  , then .....  
 (a)  $AB < AC$       (b)  $AB = AC$       (c)  $AB > AC$       (d)  $\overline{AB} \equiv \overline{AC}$
- 2 The point of concurrence of the medians of the triangle divides each median in the ratio of ..... from the base.  
 (a) 1 : 2      (b) 1 : 3      (c) 2 : 1      (d) 3 : 1

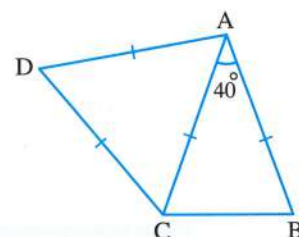
- 3 The lengths of two sides in a triangle are 4 cm. , 9 cm. and it has one axis of symmetry , then the length of the third side is ..... cm.  
 (a) 4 (b) 5 (c) 9 (d) 13
- 4 The number of axes of symmetry of the equilateral triangle equals .....  
 (a) 0 (b) 1 (c) 2 (d) 3
- 5 If  $\triangle ABC$  is right-angled at B ,  $AB = 6$  cm. ,  $BC = 8$  cm. , then the length of the median drawn from B is ..... cm.  
 (a) 10 (b) 8 (c) 6 (d) 5
- 6 The lengths which can be lengths of sides of a triangle are .....  
 (a) 0 , 3 , 5 (b) 3 , 3 , 5 (c) 3 , 3 , 6 (d) 3 , 3 , 7

3 [a] In the opposite figure :

$$AB = AC = AD = CD$$

$$, m(\angle BAC) = 40^\circ$$

Find :  $m(\angle BCD)$



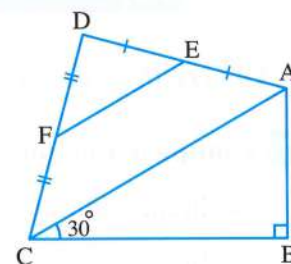
[b] In the opposite figure :

$$m(\angle B) = 90^\circ , m(\angle ACB) = 30^\circ$$

, E is the midpoint of  $\overline{AD}$

, F is the midpoint of  $\overline{CD}$

Prove that :  $AB = EF$



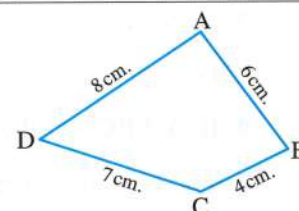
4 [a] In the opposite figure :

ABCD is a quadrilateral in which :

$$AB = 6 \text{ cm. , } BC = 4 \text{ cm.}$$

$$, CD = 7 \text{ cm. , } DA = 8 \text{ cm.}$$

Prove that :  $m(\angle BCD) > m(\angle BAD)$



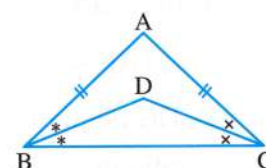
[b] In the opposite figure :

ABC is a triangle in which :

$$AB = AC , \overrightarrow{BD} \text{ bisects } \angle ABC$$

$$, \overrightarrow{CD} \text{ bisects } \angle ACB$$

Prove that :  $\triangle DBC$  is an isosceles triangle.



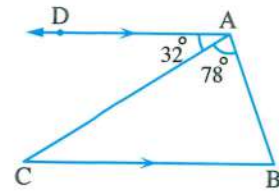


5 [a] In the opposite figure :

$\overrightarrow{AD} \parallel \overrightarrow{BC}$  ,  $m(\angle BAC) = 78^\circ$

,  $m(\angle CAD) = 32^\circ$

**Prove that :**  $AC > AB$



[b] In the opposite figure :

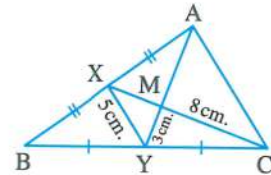
ABC is a triangle , X is the midpoint of  $\overline{AB}$

, Y is the midpoint of  $\overline{BC}$

,  $\overline{XC} \cap \overline{AY} = \{M\}$  ,  $XY = 5$  cm.

,  $CM = 8$  cm. ,  $YM = 3$  cm.

**Find :** The perimeter of  $\triangle MAC$



# كيفية طباعة صفحات معينة من ملف معين

## مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



خطوة 1



خطوة 2  
اختيار اسم  
الطابعة  
بتاعتك

خطوة 3  
كتابة الصفحات  
المراد طباعتها  
نكتب رقم 4 ثم  
نكتب الشرطة  
دي - ثم نكتب 9

خطوة 4  
اختيار نوع الورق



خطوة 5  
اختيار A4



خطوة 6